Remarks
ON
MECHANO-THERAPY IN DISEASE:
WITH SPECIAL REFERENCE TO OSTEOPATHY.

BY

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THE treatment of disease by physical methods has in recent years received a large share of attention. It is very remarkable that the medical profession should so long have neglected such a wide field of therapeutics, especially when in its various branches it has long been exploited by so many irregular practitioners. It would almost seem as if an element of mystery was necessary to make any system popular amongst medical men, and this belief is strengthened by the fact that the only physical method they have so far carefully studied and practised has been electricity. The prevention and cure of disease by manipulation has been to a very large extent left to the layman, and the practitioner who dabbled in it has been too often looked at askance by his medical brethren. If we are not to fall behind in the race for honours in this branch of therapeutics, it is high time we began to interest ourselves more deeply in it, as already the medical profession in America is suffering severely at the hands of a new race of manipulative practitioners, who have recently, indeed, invaded our country.

At all times interested in such methods of treatment, my attention was several years ago forcibly directed to this system in particular, by the remarkable improvement of several of my own reputedly incurable patients, and I at once took steps to inform myself as to the good and bad points of such a potent method of treatment.

I learnt that in America there were over 5,000 practitioners of the art of osteopathy—as it is called—and that these men were accorded the legal status and privileges of the medical profession in all but one or two States in the Republic. I therefore set myself to study carefully all the books which I could obtain on the subject, and in addition endeavoured to obtain such practical knowledge of its methods as was possible in this country. Having learnt all I could in this manner, I subsequently visited America to see the treatment in the land of its birth, and was astounded to discover that it had not only taken a great hold upon the affections of the people, but that no fewer than a dozen schools were in existence for imparting instruction on the subject and at the same time granting diplomas to those who had spent three years in its study. The tuition was in great part conducted by medical men who had been attracted by the merits of osteopathy as a therapeutic method, and whilst the training could not bear comparison with that required of a medical student it was calculated to give a thorough knowledge of anatomy as the groundwork of the art.

I was cordially welcomed not only at the schools but also at the dispensaries, and took every opportunity of conversing with the patients as to any benefit received, as well as comparing the methods of the various practitioners. I was struck with the enthusiasm which the osteopaths display in the practice of their profession, not hesitating to exalt it above every other, and glorifying it as the only rational treatment extant; as well as with the gratitude expressed by the patients, most of whom had previously been under the treatment of allopathic physicians.

I came to the conclusion that there must be some virtue in a method which had such vitality as to spread all over a continent in a few years, and at its present rate of progress bade fair to travel all over the world. I was hardly surprised at this, as my own experience in its practice had at least disclosed the fact that it was of striking benefit in selected cases.

The simplest definition of osteopathy which I have yet met is the correction of anatomical abnormalities which produce physiological discord, but its exponents do not hesitate to claim for it a much higher status. They almost all agree in calling it a distinct system of medicine whose therapeutics comprehends: (1) Manipulation, including surgery, for purposes of readjusting tissue relations; (2) scientific dietetics; (3) personal and public hygiene. It must be confessed, however, that manipulation is practised to the exclusion of every other method, and the system is acclaimed as one which permits you to eat and drink what you fancy and to live as you please, so long as you do not ignore the more important laws of health. The diagnosis consists in the discovery of a "lesion," which is something more than that so well known in surgery, and is defined as a structural change which affects the functional activity of any tissue. Such lesion may be found in any tissue, but its existence is more easily recognized in bone, ligament. and muscle. The most common varieties of lesions are what are called "subluxations" of bones, thickened ligaments, and "contractured" muscles.

A true lesion is said to be palpable, sensitive on pressure, and the functional disturbance produced has some relation to the anatomical abnormality existing. The *point d'appui*, however, of the osteopathic system is the subluxation, and most practitioners of the art are liable to find one or more in every case they examine. The centre of attraction is the spinal column, and the relation of its various vertebrae to one another and the ribs. The slightest change in the normal relation of the articulating surfaces is designated a subluxation, and this may be primary or secondary. In the former case it is produced by direct action on the bone or muscles controlling its movement, and is considered to be a source of irritation to the spinal nerves in direct central relation to it. In this way it is stated tc affect the viscera and blood vessels, thus causing perversions of function which are recognized as symptoms of disease. In the latter case it arises from excessive irritation to the peripheral ends of sensory nerves, either those terminating in the skin and subject to temperature changes, or those ending in the visceral mucosa and subject to irritation from the presence of food of an indigestible character, etc. Presumably the pressure of secondary subluxations on the spinal nerves will make them as dangerous as the primary variety, and render their reduction as necessary. The chief function, therefore, of an osteopath is to reduce the subluxations and to correct the lesions which he may discover, and in some isolated cases this may be done in what is called "one treatment." The fact, however, that the majority of cases must be treated for two or three months proves that they are not easily kept reduced; and, needless to say, it would not pay the osteopath to cure his cases so quickly.

The usual course is to charge an initial fee for twelve "treatments" at the rate of three per week and to continue the treatment of the case for one or more months, thereafter giving "treatments" less frequently, although it is sometimes found that patients are unable to stand treatment so often. But patients suffering from all forms of disease who consult an osteopath are treated solely by manipulation. Manifestly they cannot all have vertebral or other subluxations of a serious type, and I am glad to say that in my interviews with leading osteopathic practitioners and teachers in America I had repeated confirmation of this fact. I was assured by one that he rarely found them, and by another well known teacher that he never thought of looking for them. It is important, therefore, to inquire whether there are no other conditions present which contribute to the unquestionable relief acknowledged by some of their patients.

This is found in that state generally described by them as "contractured" muscle—a condition now being recognized by other medical men outside of the osteopathic ranks.

Boardman Reed, in his work, *Diseases of the Stomach*, quotes Dr. John P. Arnold, who describes this peculiarity as a somewhat doughy swelling, or in chronic cases gristly, tense, cord-like feeling of the muscles, more particularly the erector spinae.

Flint and Hammond likewise refer to the condition, and give rules for diagnosing and treating it. I have no doubt of its existence, and in its milder forms am accustomed to associate it with the muscular fibrositis of Dr. Gowers. In the more aggravated forms, however, the muscle is swollen, sodden, almost oedematous, very sensitive, and is shorter and thicker than the normal, so that the points of origin and insertion are approximated. Hence an

infinitesimal example of a subluxation arises. The causation of these contracted muscles is not always clear, but osteopaths teach that they are produced directly by external violence or unsuitable environment, or indirectly by long-continued reflex irritation keeping up contraction of the muscles. The persistent backache complained of by some men and many women is almost certainly of this class, and hence the difficulty of curing it solely by internal medication.

Even should the primary cause be removed, it does not follow that the damaged muscle can return without aid to its original healthy condition. Exercise in such a state of affairs is most painful, and seldom followed by amelioration.

Hydropathy, massage, electricity, and other physical methods are of more value and are often successful. The real cure, however brought about, consists in accurately restoring the bony relationship, and when the condition has been produced by violence, this is done by the osteopath at once and directly. When, however, it is produced by other causes, the proper course is to relax the muscles by separating as far as possible the points of origin and insertion of the muscles. I am of opinion that this is the secret of the relief afforded by an osteopathic "treatment," and in 95 per cent. or even more of the cases under their care is all the treatment that is accorded them, although doubtless adhesions are likewise broken up during this stretching process. Of course, there is nothing very novel in all this, and whatever the osteopath may say, the treatment resolves itself into a combination of massage and Swedish movements, the latter being modified so as to be mostly capable of application by one person on a couch or stool in his own consulting room or at the home of the patient.

So indignant, however, is the osteopath at the suggestion that massage has anything to do with his manipulative efforts, that he frequently foregoes the undoubtedly beneficial results of the preliminary relaxation and stretching, and proceeds by violence to attack the affected part, endeavouring to reduce the subluxation and so cure the lesion.

I have no hesitation in saying that the vast majority of his cases are quite capable of being successfully treated by other methods, and I am confirmed in this view by the statement of the dean of one of their schools, who assured me that all well-educated osteopaths were perfectly cognizant of this fact. I am convinced, however, that many ailments, and especially acute conditions such as typhoid fever, pneumonia, nephritis, "cold in the head," are liable to be seriously aggravated by manipulative attention. It is lamentable that the apotheosis of mechano-therapy should result in such ill-guided enthusiasm as its application to many acute disorders would testify. Every now and again the American medical journals, and even the law reports of the daily papers, contain records of cases injured during osteopathic treatment, but the system has now such a large public following, and its legal position is so secure, that it is difficult to obtain a conviction.

If it be a system of medicine, at the best it is purely a system of one idea. Its nosology is a lesion; its symptomatology, a subluxation; its therapeutics, manipulation; while its pathology is accommodating enough to cut both ways, the subluxation being either the cause or the effect of departure from function.

Despite these limitations, however, as a method of treatment it serves a useful purpose not only in emphasizing the value of manipulation in disease, but in laying stress on cases which have previously been ignored or undiagnosed by the profession, and hence have fallen into the hands of the bonesetters.

We are too much in the habit of thinking that bonesetters make their reputation by breaking down ankylosed joints in patients who have refused the services of or become impatient with their own medical man. This may be, and no doubt is, in a great measure true; but their reputation would be short lived were this all their work, for nothing could prevent the most disastrous sequelae in a very large proportion of their cases.

The regular practitioner of medicine has an unaccountable reverence for bones and joints, especially the bony case of the spinal canal, and this fact was admirably pointed out by Dr. Wharton Hood many years before osteopathy was invented. He published the results of a careful investigation into the methods of Hutton, the bonesetter, and showed that he obtained his results by a combination of relaxation and counter-pressure, much in the same way as the osteopath, and that his special point of attack was the spinal column. But his book has almost been forgotten and his precepts neglected.

I do not hesitate to plead for the admission of this new form of sciencific bonesetting among the recognized methods of treatment practised by the medical profession. My success in the following cases is entirely due to the study I have made of the subject, and I am sure I would have failed to be of service to any of the patients without a knowledge of osteopathic methods.

J. F., aged 48, consulted me on August 24th, 1908, complaining of a pain, of six months' duration, in the right occipital region. His head was turned slightly to the right side, and when I asked him to look straight to the front he said he could not do so on account of the pain. His story was that six months previously he slipped down eight steps, falling on the right side of his lumbar region. He experienced a little pain in this region on getting up, but this was as nothing to the severe pain which came on in the back of his neck and head as the immediate result of the accident. This took place at 7 a.m. and he returned to bed hoping it would all pass off, but as he got no better he sent for a medical man, who prescribed some treatment and ordered him to remain in bed for four or five days. At the expiration of this time he was well enough to get up so far as the pain in his back was concerned, but the pain in his head—or "headache" as he called it—was as bad as ever, and he considered this strange, as he had never had a headache in his life before. During the ensuing six months he saw several doctors, amongst them a consulting surgeon, but derived no benefit. When I examined his neck I found a distinct and decided subluxation of the atlas, the first and only one I have ever come across in my four years' experience of this kind of work, although if we are to believe the osteopath this is the most frequent subluxation in the body. I had no doubt about it. The left transverse process was near the angle of the left inferior maxilla and the right transverse process near the right mastoid bone. I considered that there was pressure on the right suboccipital nerve and that reduction of the subluxation was necessary. This I effected after some preliminary relaxation, and I was rather surprised to find that no click was to be heard during the process, as I had quite anticipated something of the kind.

From that date to this the man has had no recurrence of his pain. In mentioning the matter to several of my medical friends I was astonished to find that they thought little of the matter and referred me to textbooks of surgery for similar cases. These I consulted without success, and I believe I am correct in saying that no such case is recorded in any textbook.

In relating the matter to my friend, Mr. James Sherren, of the London Hospital, he agrees with this view, but referred me to vol. xl of the *Clinical Society Transactions*, London, 1907, where I found several cases recorded by Mr. Edred Corner, under the title, Rotary Subluxation of the Atlas. Four of these were cases of, or referred to by, Professor Howard Marsh, and he considered that in each instance one of the tendons or one of the bundles of a muscle in the back of the neck had become entangled with the posterior tubercle of the transverse process of one of the cervical vertebrae. Two had been cured by anaesthetics and reposition, one by manipulation, and one refused treatment. Mr. Corner looked upon his case as a real subluxation of the atlas, and wondered whether some of the above-mentioned four cases might not have been of the same order.

Evidently my friends had confounded the condition with dislocation of the atlas, which is recorded as being common enough, but always fatal, and of which I have myself previously reported a case in the *Glasgow Medical Journal*.[1] The click on reduction, which, in common with Mr. Edred Corner, I expected but failed to get, is only heard in cases of unilateral dislocation of the lower cervical vertebrae—a condition stated to be fairly common.

Mr. A., aged 24, consulted me in June, 1907, for a pain in the back of his neck. On examination I found a slight swelling on the left side in the neighbourhood of the transverse process of the fourth cervical vertebra, which was very sensitive. This I concluded was a subluxation of the fourth cervical vertebra, and with little difficulty reduced it. The patient experienced no further pain for eleven months, when he again "cricked" his neck. The pain returned, and a swelling gradually appeared, which had the peculiarity of becoming larger and smaller at intervals. On examination I recognized a subluxation of the fourth cervical vertebra, with an enlarged and painful lymphatic gland in its immediate neighbourhood, but in a more superficial

position. When reduction was effected upon this occasion, a decided click or snap was heard, not only by me, but by a friend of the patient, who was sitting at the other side of the room. I feel convinced that this noisy snap was caused by the breaking of some fibrous adhesion. On Mr. A.'s second visit, in a week's time, not only was there no swelling to be detected, but the pain had completely disappeared.

This case is of great interest on account of the swollen lymphatic gland. It is a distinct piece of evidence in favour of the statement that slight displacements or subluxations go on acting as a focus of irritation till they are reduced. The intermittent swelling of the lymphatic gland showed that there was an ever-present pressure on sensitive structures sufficient to produce inflammation. If this can take place superficially it is quite possible that it may occur internally and set up some trouble.

Mrs. A. B., aged 35, consulted me in October, 1908, for backache of two years' duration. Careful examination revealed nothing to account for it excepting an irregularity in the vertebrae in the lower dorsal region. This consisted of an approximation of the spinous process of the eleventh dorsal to that of the tenth, and a corresponding separation from the twelfth. At the same time there was pain on pressure over the spinous process and on the right side thereof. I concluded that I had again to deal with a subluxation, but this time of a slightly different character. Careful relaxation of all the tissues twice a week for about a month produced little benefit and no apparent improvement in the position of the respective vertebrae. Accordingly I endeavoured to replace the eleventh vertebra according to osteopathic instructions. These are simply a modification of surgical rules, and consist in (1) exaggerating the lesion by bending the body away from the prominent side of the vertebra; (2) bending the body forward to separate the articular surfaces; (3) lateral flexion of the body to the same side as the lesion, and an endeavour to raise the body at the same time. During these three movements the thumb exerts pressure on the side, upper, or lower surface of the spinous process, and, in the third movement especially, endeavours to replace it. This is not always possible the first time it is tried, and even when successful the bone does not always remain in position. This is obvious from the fact that in this case the shape had been altered by its long residence in the new position and its ligaments and muscles stretched and weakened by the unaccustomed tension. In the case in question I found at a subsequent visit that the subluxation had recurred and required reposition; but after half a dozen experiments of this kind it stayed in its place and the pain disappeared. From careful watching of this patient in her mode of sitting and walking, I believe that awkward posture had much to do with the occurrence of the malposition of the vertebra, and it is doubtless due to this fact that so many backaches persist, despite repeated medication and treatment.

The habit of sitting with one leg crossed over the other and the shooting backwards of the lumbar curve must occasion great strain of the ligaments and muscles of the spinal column. It is, therefore, necessary to educate such patients into more physiological habits and to encourage them to indulge in a few physical exercises to strengthen the muscles.

L. E., aged 35, was sent to me by Dr. Stacey Wilson in February of last year suffering from pain of seven months' duration in the lower region of his back, the crest of the ilium, the pubis, and shooting down his left leg. He was a quarryman and had fallen from a height of 40 ft. on his back. Fortunately, the fall was broken midway, or he would have been killed. On examination, I found that the posterior spinous process of the left innominate was depressed—the crest of the left ilium less easily palpated than that of the right side and a slight inequality in the pubic region. The two last lumbar vertebrae and upper part of the sacrum were likewise too prominent.

I concluded that the force of the accident had been spent on the tissues in the neighbourhood of the crest of the left ilium, and had forced the whole innominate from its position, producing a rotation upwards and forwards along an axis passing horizontally through the pubic articulation. After much preliminary relaxation, I therefore applied force in such a manner as to endeavour to make the innominate travel in the opposite direction, and was gratified to find that by degrees the bone responded. The treatment was repeated at infrequent intervals, but with improving results, and by the end of July the patient was practically well.

Books on surgery declare that such conditions as I have described are very rare, whilst according to the osteopath they are met with only less frequently than luxations of the atlas, and many strange and varied symptoms are attributed to the deformity. In all probability the condition occurs more frequently than we are willing to admit, and, like the case just quoted, left unreduced with disastrous consequences.

I might go on quoting cases of a similar kind which have occurred in my practice, but I have described a sufficient number to show that slight deformities can be present in the bony frame capable of giving rise to severe pain, and which are liable to be overlooked by medical men. Cases of this kind frequently fall into the hands of the bone-setter, and, after all, the treatment described is more or less that of scientific or regulated bone-setting.

None of the cases which I have described could have been treated successfully without some form of manipulative therapeutics, and it is of prime importance that we should be prepared to recognize and deal with such cases. If we deny the possibility of the existence of so-called subluxations—as is the custom with medical men—we lay ourselves open to the charge of perpetuating the presence of such irregular practitioners in our midst by encouraging their practice. We know that there are three sets of muscles between individual vertebrae—the intertransversales—the interspinales, which are met with in all parts of the column, although inconstantly and irregularly—and the eleven pairs of rotatores spinae in the dorsal region. These last especially do not exist without the possibility of rotation between individual vertebrae such as is affirmed by the osteopath, and it is not incredible that the action of the other two pairs may occasionally be capable of causing an approximation of spinous and transverse processes towards each other.

It is reasonable, seeing that the erect posture is maintained by a distribution of a strain equally over all the joints of the vertebral column, to infer that when there is a displacement of one of these vertebrae too much strain will consequently fall upon the ligaments and muscles between it and its neighbours, and until it is replaced pain will be likely to arise.[2] . . . The conservatism of the medical profession has allowed many forms of treatment, like massage, osteopathy, electricity, and Swedish exercises, to be monopolized by irregular practitioners when they should have been captured for the benefit of rational medicine and the good of the public.[3]

I should like to add a few words with regard to the use of this form of manipulative treatment in cases which are usually quite successfully dealt with by other therapeutic methods. It is the special weakness of this, as of every other, method of treatment that too much should be claimed for it by its devotees, but as they deliberately assert that it is the only rational mode of therapeutics they are compelled to use it in every kind of case, to the exclusion of every other form of treatment. When one considers that there is practically no indication for the use of mechano-therapy in these cases it is surprising what success is obtained by the method. The beneficial results may be attributed to suggestion, correction of minor physical deformities, stimulation of the circulation as in massage, or, what is most probable, the stimulation of the central and sympathetic nervous systems by the application of force over the vertebrae and the heads of the ribs. Whether it be possible to stimulate directly the nerve centres in the spinal cord it is difficult to say, but indirect stimulation in the method I have mentioned is quite possible. These spinal centres are alluded to in osteopathic textbooks in no vague nor uncertain manner, but with a dogmatism and certainty begotten of beneficial therapeutic results.

Just how much damage has been perpetrated by its advocates in their efforts to establish its claim to be a system of medicine it would be hard to say. Two years ago there was presented in one of their journals a series of seventy cases of cancer absolutely cured by osteopathy. On reading these cases one could not resist the conclusion that the reports were prepared for public consumption, as, needless to say, in no case was the evidence conclusive, or such as would bear investigation by scientific men.

I must confess that I have not hesitated to use the method in cases of asthma, neurasthenia, neuralgia, and others which had resisted the orthodox methods of treatment, and I am bound to add that in some cases I have had beneficial results, which could not have been attributed to the influence of suggestion.

Some of the benefit derived may have been due to improved physical condition which naturally results from the treatment, and some of it may have been due to the preliminary relaxation of the muscles and the breaking down of adhesions. "The osteopath claims that all disease is due to displaced tissue, the replacement of which is a prerogative of his own and has, as its sequence, a perfect cure."[4] The simplest method of refuting such a statement is to cure a patient of neuralgia by a short course of iron for the anaemia, which was the causative

factor, when the same patient has just ceased from a course of laborious attempts to rectify the defective spinal condition by an osteopath without any good results. But I can see no impossibility in the statement that vertebral and costal displacements may exert direct pressure on the spinal nerves as they emerge from the intervertebral foramina, or on the sympathetic ganglia which lie on the heads of the ribs. The pathology of herpes zoster is not clearly understood, and osteopathic literature teems with cases which have been cured by rectification of a misplaced rib. Head has stated that "this remarkable eruption is associated with disturbances of the peripheral nerves, usually an inflammation of the sensory ganglion or of the nerve," and it is conceivable that pressure of various kinds on the nerve or ganglion on the posterior root may have some influence in its causation. Osteopathic textbooks attach special significance to the sympathetic in the etiology of disease, and probably err as much in their emphasis of this portion of the nervous system as we do by so largely ignoring its influence. They have exalted to the dignity of laws two observations from the works of Hilton and Head respectively: (1) The muscles moving a joint, the skin over the joint, and the interior of the joint are all supplied by nerves from the same source; (2) when a painful stimulus is applied to a part of low sensibility in close central connexion with a part of much higher sensibility, the pain produced is felt in the part of higher sensibility rather than in the part of lower sensibility to which the stimulus was applied.

Their entire pathology circles around these two statements and the special factor of some displaced tissue, and in proportion as there is reality in the pressure on sensitive parts, in the same proportion is there relief afforded by its successful removal. With such a restricted and localized pathology the area of their therapeutic influence must be very circumscribed. But if this fact be recognized and appropriate constitutional treatment adopted, great benefits are likely to accrue from the admission of this mode of treatment into our therapeutical armamentarium.

I am much indebted to Mr. Billington for directing my attention to an article[5] on Paralytic Ileus as a Sequel of Fractured Ribs, by Mr. J. E. Adams. Mr. Adams quotes the following statement of Starling's: "Stimulation of the splanchnic causes complete relaxation of the lower part of the ileum with the rest of the small bowel, but it produces a strong contraction of the muscle fibres forming the ileo-colic sphincter." He records two cases of fracture of the ribs in the neighbourhood of their angles—in one case the eighth and ninth ribs, and in the other the eighth, ninth, tenth, and eleventh ribs, being involved—in which the whole of the small intestine was paralysed and the ileo-colic sphincter in a state of spasm. Now, as the great splanchnic nerve arises from the sixth to tenth thoracic ganglia, Mr. Adams attributed the paralytic condition of the bowel to irritation of the great splanchnic. Although the thoracic ganglia lie close to the heads of the ribs, he considered that some displacement of the proximal fragments of the ribs may have irritated the sympathetic chain either directly or through the rami communicantes connecting the sympathetic ganglia with the spinal nerves.

He is more inclined to believe in this explanation than in the other possibility, that at the time of the accident a severe blow was administered which caused inhibition of the muscular coats of the bowel.

REFERENCES.

[1] On a Case of Occipito-atloid Disease, *Glasgow Medical Journal*, 1890. [2] *The Laws of Life and Health*, Alexander Bryce, p. 257. [3] Ibid., p. 257. [4] Ibid., p. 255. [5] *Annals of Surgery*, December, 1909.

UNDER the will of the late Miss Julia Woodward, of Clevedon, the University of Bristol receives a donation of £1,000, which is to be used for the foundation of a scholarship either in botany or in music. The cottage hospital at Clevedon is left £200.

TWO neat booklets which have reached our hands contain descriptions of the exhibits at the Japan-British Exhibition, sent by the Wellcome Chemical and Physiological Research Laboratories respectively. Information as to the general lines on which the work is carried on is also given. At the end of each booklet are some pages in Japanese; a study of them leaves an impression of gratitude that so far not even the most advanced degree-granting body has hitherto included Japanese in its medical curriculum.

A Lecture

ON THE

INTERPRETATION OF X-RAY NEGATIVES.

DELIVERED BEFORE THE ST PANCRAS AND ISLINGTON DIVISION OF THE BRITISH MEDICAL ASSOCIATION AT THE GREAT NORTHERN CENTRAL HOSPITAL.

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INTERPRETATION OF X-RAY PHOTOGRAPHS.

THE *x*-ray negative should be examined, as it is more reliable than a print. It is impossible to reproduce in a print many details which are visible in a negative, and it is possible to have a print touched up so as to make it appear better than the original negative. If a negative is blurred so as to obscure the diagnosis, another should be made. With modern *x* ray apparatus it is possible to get a sharp skiagraph of any part of the body. It is sometimes necessary to anaesthetize a child in order to make a skiagraph. It should be kept in mind that the *x*-ray negative is produced by a shadow cast on the film of the plate. If one knows the relative position of the *x*-ray tube, the patient, and the plate at the time when the radiograph was made, it is possible to tell on a negative the right side from the left. The radiographer usually places the film side of the plate next to the patient. Suppose one looks at the film side of a negative of the kidney region, and the patient says that the plate was placed on his back, then one can tell that the patient's right kidney is to one's left hand. If a print was made from this negative, the patient's right kidney would be to one's right hand. The information as to left or right side should be supplied by the radiographer, as in some cases it is impossible to tell which is which without his help. The negative should be lighted from behind by a light which passes through opal or ground glass. This light must be neither too strong nor too weak. Special boxes lighted by electric light are made for this purpose. This brings out more detail in the negative than can be seen by holding it up to the light at a window, or to a naked artificial light. By using a proper light one may be able to see details such as a shadowy obscure kidney stone which would be invisible by an unsuitable light. A box fitted with an opal glass window and lighted inside by electric lamps of variable candle power is the best for viewing negatives by.

By tilting the negative at an angle of about 60 degrees to the perpendicular a faint detail may be made more apparent. Sometimes faint details are better seen at a distance of 2 to 3 yards than near at hand. When possible, the right and left sides of the patient should be compared; they should be taken on the same plate at the same time. If this is not possible, an *x*-ray photograph of the normal should be compared with the one under examination. It is important to decide whether a negative is a good enough one from which to form a diagnosis. One must be on guard for distortion of the image from faulty technique, photograph blemishes, forgotten buttons, mercury ointment on the patient's skin, and many other details. If there is any doubt as to diagnosis, a second *x*-ray negative should be made, and in all important cases a second plate should be made after a few days, in order to corroborate the first.

EXAMINATION OF BONE.

In examining a bone the following points should be looked for:

1. Outline of the bone, for irregularities due to fracture, exostosis, detached tendons.
2. Periosteum, which is normally invisible, but may be visible when thickened or detached.
3. Cortex, which may be increased or decreased in thickness or density.
4. Medulla, which may be increased or decreased in thickness or density.

5. General or local atrophy from disease or disuse.
6. Changes in the trabecular structure.
7. Epiphyseal line.
8. Epiphysis.
9. Ossification.

Cartilage casts no greater shadow than muscle, therefore the cartilaginous ends of the bones do not appear in a radiograph. Calcified cartilage, as in the rib cartilages of old patients, throws a distinct shadow. Calcified arteries throw distinct shadows. Lines of separation between muscles, lobulation of fat in superficial fascia, and the depth of the skin can all be shown in suitable cases.

Any calculus which sinks in water can be shown to cast a shadow, but those which float in water cast little or no shadow. Biliary calculi do not cast shadows, and cannot be demonstrated by *x* rays. It is possible for a biliary calculus to be demonstrated by *x* rays, provided it is heavier than water; and, in exceptional cases, biliary calculi have been demonstrated by *x* rays. Secondary deposits in the liver cannot, as a rule, be shown on a plate, though secondary deposits in the lungs can be demonstrated. This is due to the great contrast between the dense secondary growth and the transparent lung tissue.

Flatus in the intestines, by making the body more transparent to the *x* rays, makes a very definite mark on the plate. Chips of glass in the hand can usually be seen on a plate, but thorns do not appear.

Aneurysm of transverse part of the arch of the aorta

Green-stick fractures and impacted fractures may be seen on a plate when it is impossible to see them on the screen. In examining a skiagraph of the neck of the femur, the amount of rotation outwards of the foot must be considered. If the foot is rotated out, the neck of the femur appears short, and if the foot is kept quite straight the full length of the neck of the femur is shown. Dislocations are usually evident on a skiagraph, but some joints require stereoscopic views to show their condition. The elbow, wrist, and ankle, and in a few cases, the shoulder, may require stereoscopic views for a correct diagnosis of dislocation. Callus casts a shadow, and can be recognized during union of bones. It appears in a radiograph four weeks after a fracture. The difference between the shadow of pus and serum is so little that for practical purposes it does not exist.

Tumours cast very little or no shadow, unless they are very large, bony, or calcified. Brain tumours are hard to show by *x* rays, but they have been confirmed by this method. Early carcinoma in the stomach casts no pathognomonic shadow. A negative shows most detail when it is quite dry. When it is partly damp the damp part appears lighter than the dry part, and if this is not noticed it could give rise to a mistake in diagnosis. A damp circle in the region of the kidney appears like a stone when the rest of the plate is dry.

A normal radiograph of the bones of the knee and shoulder is frequently got when the patient has great pains in these regions, because it is the soft parts which are at fault, and it is often impossible to show sufficient detail in the soft parts to make a radiograph of value.

SCREEN EXAMINATION.

In order to make a thorough screen examination one must have been in the dark for at least ten minutes. By that time the fatigue of the retina has passed off and the eye is prepared to see what it otherwise could not see. Students, and their teacher, often walk into the dark *x* ray room to see a patient with renal calculus, and while the radiographer is pointing out the stone and its position in the kidney someone remarks, "Where is the screen?" He cannot see the screen, while the *x*-ray worker, who has been in the dark for a long time, can see not only the screen but also the shadow of the kidney and the stone. Within ten minutes the student can see just as well.

A lead diaphragm is most essential to cut off all extraneous rays when making a screen examination. Without a diaphragm it may be impossible to see a needle in the hand, while with the diaphragm it may be quite easy.

The *x*-ray tube should be so fixed that it is easily moved about. It should be under the *x*-ray couch, and should be well protected so as not to let the *x* rays fall on the operator or on the spectators.

Screen examination of the head, except for foreign bodies, is of little value. A screen examination of the abdomen should show the pelvic bones and vertebrae, the outline of the kidneys and liver, flatus in the intestine, and metallic foreign bodies, and frequently a renal calculus when one is present. Soft tumours in the abdomen do not appear unless they are very large. A screen examination may fail to show a fracture when a plate shows it clearly.

Examination of the chest should be by both screen and plate, as each has its sphere of usefulness.

The screen examination during removal of foreign bodies is sometimes a necessity, even after they have been carefully localized.

It is impossible to tell at what depth a foreign body lies from the examination of a single negative. The nearer a foreign body is to the plate during the time of exposure, the sharper will be its outline. Thus, if two similar foreign bodies are represented in a negative, the one with the sharper outline is the one nearer to the plate. For exact localization, special methods must be used.

URINARY CALCULUS.

A patient with symptoms of urinary calculus should be radiographed so as to show both kidneys, both ureters in their entire extent, and the whole of the bladder. This is necessary, as symptoms pointing to stone on one side of the body may be due to a stone on the other side. Symptoms of stone in the bladder may be due to stone in the kidney and vice versa. A patient should be prepared for radiography by a vegetable laxative the night before. Calomel should not be used as it might cause a shadow. An enema should be given immediately before the radiograph is made. The patient should not have had a meal for twelve hours previous to the *x*-ray examination. Renal calculi can frequently be seen on the fluorescent screen, but there are some which can be radiographed which cannot be seen on the screen. A negative which shows the outline of the psoas muscle, the second last rib, and the lower pole of the kidney clearly, and which has been taken while the patient held his breath, is good enough for giving a negative or positive diagnosis as to stone. When the lower pole of the kidney is blurred it indicates that the patient has moved his kidney by breathing, and a small stone may be made invisible by this movement. If the negative

does not show the outline of the psoas muscle it is possible to make a better one, and if the diagnosis is doubtful a better negative should be made. It may be impossible to get a satisfactory radiograph in the case of a very fat patient. The radiograph should be made while the patient holds his breath. Frequently the outline of only one kidney appears. This is usually the left kidney, and is due to distension of gas in the descending colon pressing on the kidney and thus outlining its edge. The outline of the lower poles of the kidneys can be made more evident by inflating the large intestine with air by a Higginson's syringe, but this method is not recommended for the purpose of showing renal calculi. A calculus of *oxalate of lime* casts the darkest shadow. *Cystine* stones come next in density, followed by *phosphate of lime*. *Mixed phosphate* stones cast still less shadow, and last in order come *uric acid* stones, which may cast no shadow at all. A stone of exactly the same density as the kidney may cast no shadow at all.

Renal Calculus.

A negative showing stone in the kidney should conform to the following points:

Position.—The stone should be in the position of the kidney. It is possible to have two radiographs of a stone showing the stone in different positions. This is caused by the relative position of the *x*-ray tube, the stone, and the photographic plate. Thus when the shadow of a stone coincides with that of the last rib, it is possible by changing the position of the *x*-ray tube to project the shadow of the stone clear of the last rib. When a stone can be seen on the fluorescent screen, it will be seen to move freely with respiration. A range of motion of 1 to 1½ in. is usual.

The position of the kidney varies a great deal, but usually renal calculi lie to the inner side of a line drawn vertically upwards from the highest point of the iliac crest. Calculi in the kidney may appear above the level of the last rib and below the level of the crest of the ilium, though such extreme positions are rare.

Density.—The density of its shadow may vary from little more than that of the shadow of the psoas to that of the densest part of a lumbar vertebra.

There may be *one or many*. A single radiograph cannot decide the number of stones present, but it is possible to tell the number by stereoscopic radiographs. Several widely separated stones in the region of the kidney (especially at its periphery) may indicate hydronephrosis.

Fallacies which simulate stone in the kidney are:

Blemishes in the plate. These have usually sharper edges than a stone, and they are usually multiple, though not necessarily so. The radiograph of a stone always has less clearly defined edges than a blemish in the plate.

Calcified lymphatic glands. These are usually found lower down than the position of the kidney. They are rounded, and present a granular appearance, unlike the homogeneous appearance caused by a calculus. The granular appearance is seen in very good radiographs only. A small calcified gland casting a shadow in the position of the kidney could be mistaken for a calculus, and unless an indication of its nature was given by the presence of other calcified glands, a mistake might easily be made. Calcified glands most frequently cast a shadow about the brim of the pelvis and along the side of the spinal column.

Scybalous masses are frequently outside the position of the kidney.

Bismuth, which the patient may have swallowed.

Concretions or foreign bodies in the appendix. These usually lie outside the line of the kidney.

Atheroma of vessels and *myositis ossificans*. In such cases well marked signs would be probably found elsewhere.

Putty-like mass found in old tuberculous kidney. These may cast shadows indistinguishable from stone, or their shadow may be streaky and ill defined, and occupy nearly the whole kidney region. In this case the lowest part of the shadow may be the densest, as the heavy lime salts tend to gravitate.

Extraneous bodies, such as a pigmented mole on the skin, mercury or lead ointment, or other foreign body which may have got between the patient and the plate.

Combinations of any of the above fallacies and a true stone.

A shadow which looks like a stone but cannot be confirmed by subsequent plates should not be considered as stone.

X rays have been used in the operating theatre at the time of operation in order to ascertain where a stone lies in the kidney before opening it. After the kidney has been delivered it is placed in the path of the *x* rays, and the surgeon looks at the shadow of the kidney on a fluorescent screen placed in a cryptoscope. He can thus locate exactly the position of the stone before opening the kidney. Once a stone has been seen on a plate there is a strong probability that it can be seen on the fluorescent screen, provided that

1. The patient is not too *fat*, and plenty of fluorescence can be seen on the screen.
2. The examiner has been in the *dark* for at least ten minutes, so as to remove the fatigue of the retina.
3. A *diaphragm* is used to stop off all *x* rays except over an area half the size of the kidney.

It can be made out more distinctly once it is located by making the patient breathe deeply, and then the stone and kidney will be seen to rise and fall at least 1½ in.

Ureteric Calculus.

A ureteric calculus is mainly distinguished by its position, shape, and size. The position of the ureter on an *x*-ray negative is indicated by a line drawn from the tip of the transverse process of the second lumbar vertebra downwards across the transverse processes of the third, fourth, and fifth lumbar vertebrae to the sacro-iliac synchondrosis and thence to the symphysis pubis nearly concentric with the pelvic brim at a distance of about 1 in. from the brim. Ureteric stones are frequently found where the ureter is narrowest, but may be found elsewhere. They may change their position from day to day not only downwards, but also upwards. Calcified glands are specially common in the position of the ureter as it lies over the sacro-iliac synchondrosis and are liable to be mistaken for ureteric stones. They are usually larger than ureteric stones.

Shape.—The shape of a ureteric stone is usually oval, or elongated. When a stone blocks the ureter there may be a deposit of crystals above the stone, and these cast a shadow, so that a streak is got on the plate. The long axis of a ureteric stone is usually directed towards the bladder. This is important for distinguishing ureteric stone in the pelvis from stone in the bladder. Stone in the bladder generally lies more transversely, while ureteric stone lies more in the direction of the ureter.

Size.—Small ureteric calculi do not usually demand operative treatment. A radiograph made later on may show that the stone has passed on. Stones in the ureter may, however, become encysted, and then they may grow as large as a vesical calculus.

Fallacies.—The same fallacies may be met with in connexion with ureteric stone as are found in cases of renal stone.

In doubtful cases radiographs should be made with a metallic bougie in the ureter in order to show the relative position of a doubtful stone to the ureter. The value of this method is increased by making stereoscopic negatives. Specially opaque *x*-ray bougies should be used. But even this method is not absolutely reliable, as a calcified gland has been found which surrounded the ureter, and cast a shadow indistinguishable from a ureteric stone.

In the position of the ureter in the pelvis there are frequently small shadows which closely resemble ureteric calculi. These are usually caused by phleboliths in the pelvic veins, and are comparatively common. They may be distinguished from ureteric calculi in some cases by:

1. Their relative position to the ureter when a bougie which is opaque to *x* rays is passed into the ureter. They are seen to be placed at a distance from the bougie.
2. They are frequently multiple and in a line. When this line does not correspond with that of the ureter it is in favour of a diagnosis of phleboliths.
3. Their shadow is clearer than that of a ureteric calculus.
4. They are often round, but may be oval.
5. They may cause no symptoms of stone.
6. *Stereoscopically* they may be shown to lie in several planes.

Vesical Calculus.

Vesical stones usually cast *oval* shadows, and *lie transversely*. They are, as a rule, diagnosed without the help

of *x* rays, and the rays are used only as a confirmatory diagnosis. A radiograph of a vesical stone is only likely to be confused with one of a stone in the lower end of a dilated ureter. The vesical stone usually lies with its long axis more or less transverse, while the ureteric stone has its long axis more or less in the line of the ureter. Scybalous masses may cast shadows like vesical calculi, but these scybala are usually indented, whereas vesical calculi are usually oval with no indentation. The bladder can be made very distinct in a radiogram if it is filled with air while being radiographed.

FRACTURES.

Screen examination shows a gross fracture, but certain fractures cannot be recognized by screen examination. The latter include green-stick fractures, cracks in bones with no displacement, small chips partly detached from the bone, and fractures of the phalanges caused by crushing. Wherever there is displacement of fragments the fracture can be seen on screen examination provided one fragment does not cover exactly the other fragment. Therefore a fracture should always be looked at in two planes. Since the introduction of *x* rays metal splints should be used as little as possible, as a fracture cannot be shown satisfactorily through a metal splint. All splints and bandages should be removed whenever it is possible, as they cast shadows. Plaster-of-Paris, iodoform, adhesive plaster, thick layers of cyanide gauze, lead lotion, mercury ointment, and rubber protective tissue cast fairly deep shadows, and should always be removed before screen examination. The screen examination of every fracture can be made most conveniently with the *x*-ray tube below the couch. A cryptoscope should be used as little as possible. When it is not possible to darken the room it is best to make the screen examination at night. A fracture which will make a useful limb often looks very bad on the screen; therefore never let the patient examine the screen. The fragments should lie side by side—not end to end—in a well set fracture.

Fractures are practically never set end to end unless operated on. When set end to end the fragments unite usually at an angle and not in a straight line. The method of union is shown by the radiographs.

The redundant bone is absorbed where it is not required, and new bone thrown out where it is required. Callus and old bone are moulded so that, though the fragments united side by side, the final result is a straight or very nearly straight bone. It is not necessary to set a fracture while watching the result on the fluorescent screen.

In some cases, even under anaesthetic, it is not possible to bring the fragments end to end. This is specially true of fracture of the lower end of the humerus, involving the elbow. Even when it is possible to bring the bones end to end it is not possible often to keep them so. Harm can be done by too much *x*-ray examination, and too many trials to get the bones into better position. A well united fracture shows the line of fracture for years after good union has taken place.

The illustration shows a case of aneurysm. The patient had worked in the *x*-ray department for a year, while suffering from a slight cough and huskiness. On examining his chest by *x* rays a large aneurysm was discovered, as shown in the photograph. He was put to bed for six months and the aneurysm has not increased.

[Dr. Pirie showed a number of *x*-ray negatives to illustrate some of the points to which he referred.]

THE ninth International Conference on Tuberculosis will be held at Brussels from October 5th to the 8th. The principal subjects proposed for discussion are: Hereditary tuberculous contagion; the predisposition to the disease; the protection of children against tuberculosis; tuberculosis and the school; the part of women in the campaign against tuberculosis. Reports on the progress of the fight against tuberculosis in different countries, and others by the committees or sanatoriums, the milk supply, solar radiation, international statistics, and international marks indicating the condition of the lungs, will be presented. A number of communications are promised. Among them is one by Dr. Nathan Raw on the general measures recommended by the International Conference to the Public Authorities for the prevention of the spread of tuberculosis in different countries. All inquiries relative to the congress should be addressed to the Secretariat, Avenue Van Volxem, 253, Forest-Brussels.

THE SPREAD OF CANCER AMONG THE DESCENDANTS OF THE LIBERATED AFRICANS OR CREOLES OF SIERRA LEONE.

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I HAVE been rather struck within recent years by the increasing number of cases of cancer of various organs, especially of the breast, that have in the course of my practice come under my observation, and this particularly so among the descendants of the liberated Africans, commonly called creoles, who form the bulk and principal portion of the colony proper.

In consequence of this, I have been induced again to look into the returns of cases admitted into the Colonial Hospital, as well as into my private case-book, to see how far I would be justified in speaking of an increase of this disease among the creoles, its apparent rarity among the resident aborigines in the colony and in the hinterland of Sierra Leone, and how far this apparent increase is due to causes which may be traced to the influences of European civilization and the adoption of the European mode of living.

In pursuing the investigation of this subject, I would first consider the case of the resident aborigines in the colony and in the hinterland. From the fact that this disease is rarely seen or met with among the hundreds of female aborigines who are treated regularly every year in the Colonial Hospital, and that the medical officers of the protectorate districts, especially those who are stationed in large towns where there are established dispensaries at which the natives have been encouraged to attend for treatment, have in their official returns not shown the presence of new growths among their patients, we can safely assume that cancer as a disease is very rare among the aborigines. This is, however, only fairly, but not altogether, satisfactory, as there may be cases which are kept in the background by the people, and which, even when on his patrols in the district, the medical officer cannot get hold of. Therefore, in spite of the non-entry of cases of cancer in the official returns, I would rather not say that the aborigines are immune from the disease, but that the disease is rare among them.

With reference to the creoles in the colony proper, an examination of the records of hospital cases and those of medical practitioners would show that within the last forty years cancer as a disease has been spreading among them.

In 1900 I endeavoured, in a paper entitled "Prevalence of Malignant Disease among the Natives," which formed the appendix to the Colonial Hospital Medical Report, to tabulate cases of malignant new growths that were admitted into the hospital within the years 1870–1900—a period of thirty years. Out of 22,453 cases of all kinds treated in the hospital, only 20 cases of malignant disease were recorded. These cases were simply described as "malignant tumour," "carcinoma," "sarcoma," "malignant growth," but without any details being given as to the particular nature of the disease or of the organ or tissue invaded.

To illustrate my meaning fully I append an extract from the paper, showing in decades the number of cases treated and the number of malignant growths noticed at each period:

Period.	Total Number of Cases Treated.	Nature and Number of Malignant Growths Noted and Treated.	
1870–1879... ...	6,509	Cancer of the breast	2
		Sarcoma	1
		Malignant disease of jaws ...	1 — 4
1880–1889... ...	5,334	Cancer of the breast	2
		Cancer of the liver	2
		Carcinoma	1
		Malignant disease	1 — 6
1890–1899... ...	9,392	Malignant growths	2
		Malignant tumour	1
		Cancer of the liver	1
		Epithelioma	1 — 5
	Grand total		15

If to this third period (1890–1899) be added the 1,218 cases treated in 1900, and among which were:

Epithelioma of the lower lip	1
Scirrhus of the breast	2
Cancer of the pancreas	1

there would be for the period 1890–1900, 10,610 cases treated, including:

Epithelioma of the lower lip	1
Malignant growths	2
Malignant tumour	2
Epithelioma	1
Cancer of the liver	1
Scirrhus of the breast	2
Cancer of the pancreas	1

Tabulating the period under review, the proportion of disease of malignant nature to all the other diseases treated shows clearly as follows:

Year.	Total Patients Treated.	Diseases Malignant.
1870–1879... ...	6,509	4
1880–1889... ...	5,334	6
1890–1900... ...	10,610	10
	22,453	20

Between the dates 1900–09 there were 10,163 cases admitted into hospital. Of these there were:

Carcinoma of the breast	10
Adeno-sarcoma of the groin (recurrent) ...	1
Adeno-sarcoma of the breast (recurrent) ...	1
Carcinoma of the uterus	3
Papilloma of the bladder	1
Carcinoma of the rectum	3
Sarcoma of the shoulder-joint	1
Chondro-sarcoma of the upper jaw	1
Carcinoma of the oesophagus	1
Melanotic sarcoma of the foot (recurrent) ...	1
Epithelioma of the tongue	1
Sarcoma of the arm	1
Sarcoma of the eye	1
	26

These growths, that is, those collected between 1900 and 1909, have been verified by microscopic examination at the Cancer Research Institute of the University of Liverpool.

I have, in compiling this return, not taken in any figures from the Princess Christian Mission Hospital, of which I am one of the consulting surgeons, as these records are not available, having been destroyed last year (1909) by a destructive fire which consumed the entire building. But I am in a position to say that a large number of cases was subjected to operation by me and the other surgeons of that institution.

The above figures are interesting as indicating the presence of cancerous and other malignant growths in the descendants of the liberated Africans or creoles in this colony. I admit that it is not safe to base definite conclusions as to the extent of the increase or spread of this disease upon statistics alone, and therefore I do not consider the figures in the last preceding table as accurately representing the extent of the increase or spread of the disease. For a number of cases must exist which, unfortunately, the general practitioners do not come across, and there must be many sufferers who do not seek the aid of the hospitals. These latter are more or less in the hands of the native fetish doctors, who lull them with the false hope of cure by stating that their disease is a result of witchcraft, and that they (the fetish doctors) are the only persons capable of treating their disease and giving them the desired relief. Some of these patients have remained in their hands trusting still in their occult powers until either becoming hopelessly incurable, the fact at last dawns in their minds that they might seek other aid, or they arrive at that stage where nothing remains for them but to long for that relief from their terrible sufferings which death alone can give.

The existence of cancer and other malignant growths among the creoles, and its absence or rarity among the aborigines, are due in my opinion to the civilized habits of, and the civilizing influences operating upon, the former, and to the primitive mode of living of the latter. The creoles have adopted the mode of living, the food and dress, of the European—have to a great extent discarded the simple food of their forefathers, have been craving for and indulging in preserved and imported foreign food—have substituted the European for the natural African environment, and entailed on themselves in their eager pursuit for wealth and luxury the anxieties and worries incidental to civilization and consequent liability to premature decline.

Reverting to the question of food, while the creoles in a tropical country like Sierra Leone consume a large quantity of meat which is absolutely unnecessary, the aborigines—the Timnes, the Mendis, Kurankos, and others—confine themselves mostly to grain and vegetables, which really should form the bulk of the dietary of the native in the tropics, and eat very little of flesh or meat, with the result that the latter are on the whole healthier, and are free from the tendency to engender and propagate foreign diseases.

On the question of the relation of diet to disease, some medical authorities have asserted that butcher's meat is undoubtedly one of the means by which cancer is propagated. Although I cannot yet, for want of sufficient data, absolutely accept this theory, yet the fact that cancerous growths are common among the well-to-do creoles who can with ease afford meat and other articles of European diet as portion of their daily dietary, strongly appeals to me as lending a support to that theory.

Epitheliomatous growths are very rare among both creoles and aborigines. By this I mean epithelioma of the lip, tongue, cheek, etc., such as have been met with among the negroes of the West Indian Islands, the Southern States of North America, and in India, and are considered to be the result of local irritation. This rarity is possibly due to the fact that the creoles are not great smokers of clay pipes, and are to a large extent the possessors of good teeth. I have, however, noticed a marked tendency to degeneration of the teeth among all classes from children upwards—a condition which was certainly absent twenty-five years ago, and which I put down to the use of European articles of diet, as saccharine foods, preserves, and sweets. If this tendency is not checked I would not be surprised if in another fifty years epithelioma of the tongue should become as common a disease as cancer of the breast in this colony.

But in the aborigines also there is a marked absence of these epitheliomatous growths, and yet both men and women and even children are great clay pipe smokers. Their teeth are, however, kept beautifully, and pearly white, and that tendency to decay which has been noticed in the creoles is altogether absent in them.

The presence of cancer of the breast among the creoles of the colony nullifies, in my opinion, the theory advanced by Dr. Hearsey, Principal Medical Officer of British Central Africa, in his paper on The Rarity of Cancer among the Aborigines of British Central Africa (published in the BRITISH MEDICAL JOURNAL of December 1st, 1906), in which he states:

> Of the various theories advanced to explain the origin of cancer, the theory that it is purely local in origin appears to have obtained the widest acceptance. Premising that cancer of the breast is local in its origin, that for physiological reasons the breast is subject to great and sudden alternations in its functional activity, both at puberty and during pregnancy and lactation, it appears to me that any disturbance of the physiological functions of the breast during lactation would act as an exciting causative agent of no small value in the production of cancer. All native children have of necessity to be brought up on the breast. In civilized communities, even among the poor, there is a marked and growing tendency to wean infants at the outset. In consequence of the physiological increase of supply of blood to the breast during lactation, the artificial suppression of the latter may act as a powerful exciting cause in the production of cancer. If this is not so, how is it to be explained that aboriginal women, who are always compelled to suckle their young, are so immune from cancer of this origin that it is practically unknown amongst them?

To this I have to observe that the cases of cancer of the breast which I have enumerated above as occurring between the years 1900–9 have all come within my personal observation and knowledge. They were all multiparous women who had nursed their infants from twelve to eighteen months each time before weaning, and they had become again pregnant after an interval of from three to twelve months, so that the mammary glands in them were in a state of constant excitement and activity. The physiological activity of the mammary glands is not

in my opinion a reasonable theory to account for the apparent immunity or rarity of cancer of the breast amongst the native women of British Central Africa. The presence and apparently increasing prevalence of this disease amongst the civilized native women descendants of the liberated African in Sierra Leone must point out that we must look for some other means brought about by their contact with and embracing of civilization.

The important fact of hereditary predisposition has not been lost sight of, but so far I have been unable to trace the existence of any growth whatever in their family history of the majority of the cases examined. In one case, however, there was distinct hereditary origin, for which I can vouch, as I treated the grandmother for cystic adeno-sarcoma of the right breast, the granddaughter for carcinoma of the uterus, and the great-granddaughter for recurrent adeno-sarcoma of the groin.

It may be interesting, as bearing upon the question of civilization as a contributory cause to the origin and spread of cancer and other diseases among aboriginal population, to compare the history of two African peoples on the West Coast of Africa—the Sierra Leone creoles and the Fantis or natives of the Gold Coast.

In the case of the Sierra Leone creole, his ancestors of various tribes and languages, different habits and social customs, and of various temperaments, dispositions, and idiosyncrasies, had, as an outcome of the suppression of the slave trade and slavery, been brought and located in Sierra Leone. Possessing nothing of the elements of a nation in common, they could not combine and unite and so become a distinct entity and evolve, if not a language, a common social custom and mode of living best suited to their state and condition as children of the tropics. Their eagerness in their ignorance to forsake their own native social customs and to embrace and adopt the language, dress, and mode of living of their benefactors—an eagerness largely born of gratitude—was only paralleled by the earnest solicitude on the part of their benefactors to help them to throw off what was "native," and which was unwisely regarded by the latter as relics of barbarism and heathenism, and assist them in the adoption of their language, customs, and mode of living. As ignorance and tribal differences slowly gave way to education and intermarriages, the tendency not to assimilate what was best in their native brethren or to unite, but to imitate, adopt, and practise what was foreign, grew and grew until, by the process of evolution, the Sierra Leonean had become more English than any other people on the West Coast of Africa. The initial cause of this was the absence of a common nationality, tribal origin, or clanship; for how different would the creoles have been if their forefathers were all from the same country and of the same tribe! They would have preserved their language, traditions, customs, and habits, and have been better able to resist, for a considerable period at least, the inroads of certain civilized habits and influences, the adoption of which has proved detrimental to their very existence.

Now let me take the case of the Gold Coast, and see how far European civilization has affected a large majority of the people there who are one in language, habits and customs. These people have been in contact with European nations for five centuries. Their country was visited by the Phoenicians; they have had at various periods and for more or less long duration constant intercourse with the Danes, Dutch, Portuguese, Germans and English, who have at intervals and in succession held and fortified their coast towns. Yet after so many centuries of close contact with Europeans, they have by virtue of their race instinct and race unity resisted as one people the inroads of European civilization into their social life, and as a result we find the absence or rather rarity of cancer and other new growths amongst them. How long this condition will last remains to be seen. Native customs die hard, but with the establishment of permanent peace in their country, the opening of their country by railways, the constant influx in increasing numbers of Europeans exploiting the country and working the mines, the equally rapid increasing number of the offspring of such Europeans as a result of intercourse with the native coloured women, descendants of older decades from Danish, Dutch, German and English forefathers, and with the other non-hybrid native women, the liberal and progressive system of education now being established all over the country, I am very much afraid that the social habits and native customs of the Gold Coast people will before long disappear before the mighty onslaughts of European civilization, and with such disappearance arise those conditions which I believe, as the outcome of this civilization, are the origin of cancer. I entertain this apprehension also in regard to the Nigerias and other native territories which are being exploited by or made as a home for the white man.

I have in the above sketch attempted simply to give facts, and state my impressions based on those facts. I have refrained from making definite conclusions or positive statements, and necessarily so where the field of investigation is so wide and my opportunities for making researches are so limited. If, however, this sketch should serve to induce others to collect data and prosecute researches as opportunity offers so that definite conclusions may be arrived at, and should lead the creoles to reflect and alter their present mode of living so as to avert becoming the victims of this dire disease which up to the present baffles medical science, I shall not have made the attempt in vain.

ONE CAUSE OF CANCER AS ILLUSTRATED BY EPITHELIOMA IN KASHMIR.*

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During twenty-five years, of 4,902 tumours removed by operation in the Kashmir Mission Hospital, no less than 1,720 were malignant, and of these 1,189 were epitheliomatous, and 848 were on the thighs or abdomen and were due to the irritation of the kangri, a portable fire basket, carried by the people under their clothes (Fig. 1). When sitting down this rests against the inner sides of the thighs or the front of the abdomen. The front of the chest, the breasts and the calves of the legs are all exposed to the irritation of heat, and they also are liable to become the seats of epitheliomatous disease, although much less frequently than the thighs and abdomen. The disease is twice as common in men as in women. The average age of the patients was as high as 55. Epithelioma is extremely rare under 40.

Pre-Epitheliomatous Conditions.

Scars from previous burns are often the starting-point for epitheliomata. Many of the patients show a strong tendency to proliferating epithelium, and on the abdomen and thighs it is extremely common to find dry scaly pigmented spots or patches slightly raised from the surface. The skin is often mottled and shows the lines of distribution of superficial veins. This is due to overlying pigmentation deposited as the result of the irritation and dilatation of the veins caused by heat. Horny tumours are not rare and sometimes at their base transition into epithelioma can be demonstrated. There is also a condition allied to chronic eczema in which there is redness and a tendency to desquamation. This gradually shades off into the actual formation of scar tissue. When epitheliomatous changes are supervening, thickening is followed by raised patches like wheals. This may be followed by ulceration and gland infection.

Clinical Pathology.

There are three types of kangri burn epithelioma—the raised, the excavated, and the mixed. In the raised type there is usually ulceration, and often fungation and cauliflower excrescence (Fig. 2). Two inches in diameter is a common measurement. In the excavated type the floor is irregular and the edges undermined. In the mixed form the growth as a whole is raised, and circular or oval, and in the centre is a deep crater-like depression. Sometimes one portion of the growth is fungating and another portion excavated. All these growths are very septic, and the skin around is sodden with fetid discharge, which dries and forms crusts on and around the tumour. Ulceration and infiltration proceed, and muscles, peritoneum, and even the surface of ribs may be attacked. Glands are slow to show signs of infection. In the thigh they are usually involved in the following order: along the upper part of the internal saphenous vein, deep in Scarpa's triangle,

* Read before the Bombay Medical Congress.

close to the side of the pubis, transversely below Poupart's ligament, and, in advanced cases, the deep femoral and even the external iliac glands may be involved. In the abdomen, if the primary growth is above the umbilicus, both axillae may be affected—first, the anterior axillary glands, and later on the deep glands in front of and to the inner side of the vessels. Infected glands frequently attain the size of a pigeon's egg. They soften early. When they break down, diffuse infiltration may occur, and the overlying skin may become brawny. Eventually the skin gives way, and a deep ragged ulcer results, from which there is copious foul discharge (Fig. 3). The patient dies of exhaustion, septic intoxication or haemorrhage, from erosion into a large vessel.

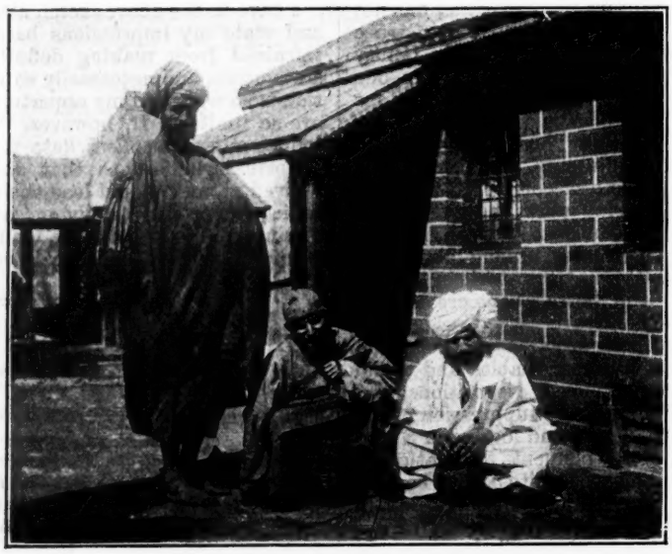

Fig. 1.

On section the kangri burn cancer shows thickened edges and floor with translucent and opaque patches. The bulk of the tumour consists of mottled red and grey embryonic tissue with a scaffolding of fibrous tissue and numerous blood vessels. Stiles's method is useful in demonstrating macroscopically the distribution of the infiltrating epithelium. Microscopically the growths are found to be typical squamous-celled epitheliomata, with abundant cell nests. The contents of the lymph glands in the later stages are soft grey and granular, like those of a dermoid cyst.

RESULTS OF TREATMENT.

By prompt and wide removal a radical cure can be attained in the majority of cases. Most careful examination of the groups of lymph glands is required, and they must be absolutely cleared out if any glands are enlarged. At the time of operation the glands must be dealt with first and the septic primary tumour last of all. Glands must not be torn, burst, or cut, and the primary growth should be seized with a volsellum and dissected out without handling. Portions of underlying muscle, and even of peritoneum, should be removed, if necessary. If the glands of groin or axilla have infiltrated the cellular tissue and the skin is brawny, they should not be touched.

Of the total number of cases, 6 died as the result of, or their deaths were hastened by, operation. Of these, 4 were from prolonged suppuration in recurrent growths, 1 from peritonitis, and 1 was due to haemorrhage from ulceration into the femoral artery. But this is far from representing the mortality of the disease. Some cases are inoperable when first seen. Of 300 cases, the records of which I have examined, I find that there was known recurrence in 20. I should fear that there may be at least twice as many unknown to us and that the rate of recurrence may be as high as 20 per cent.

Compared with mammary carcinoma, the disease is superficial at first, and so the diagnosis is early. Superficial lymphatics are first affected, which gives surgery a much better chance, and in the case of the thigh the glands of the groin are under observation and unlikely to escape detection. Consequently the disease is not nearly so malignant as scirrhous cancer.

Many causes have been assigned for cancer. It would appear that irritation, or excessive stimulation, is the most important of all. The effect of a sharp tooth on the tongue, of the chewing of betel in producing buccal cancer, and the application of caustics to warts in elderly people, is well known. In the kangri burn cancer we have a most important illustration of the result of irritation by heat. Year by year we have going on under observation the production of cancer by one particular cause. And we have every stage, from the earliest signs of epithelial

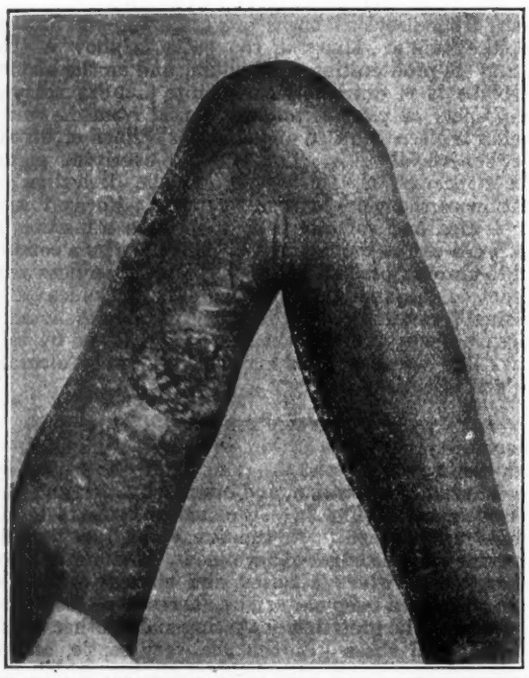

Fig. 2.—Kangri burn epithelioma. Raised type. Observe the scar tissue above and below, the mottling of the thigh and a dilated vein, and the scaly and pigmented condition of the calf.

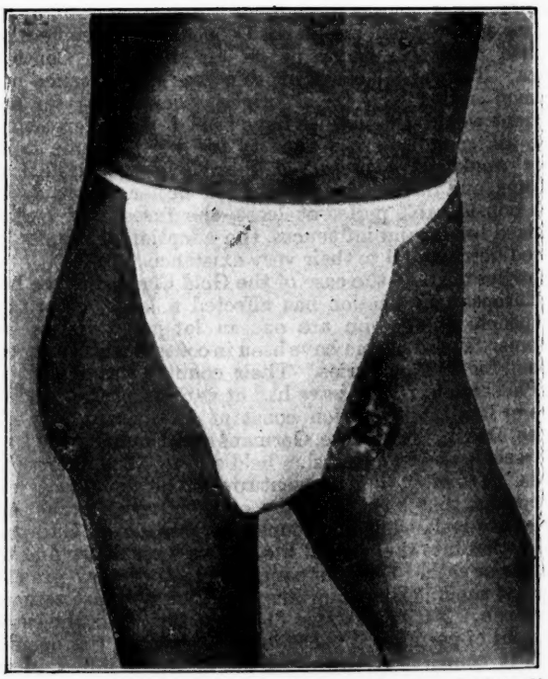

Fig 3. Excavated secondary epithelioma of groin, with thin discharge from lower angle. The upper edge of the primary growth can be seen below.

proliferation to the most advanced cancerous growths with secondary deposits. Kangri burn cancer is a local disease arising from a local cause, and that cause is, in my opinion, not a parasite, but the irritation of heat. Its local infectivity is no proof that it is parasitic. In Thiersch grafts, epithelium detached from one site grows readily in another. It is not difficult to conceive the possibility of a much greater degree of independent growth and reproduction of epithelium apart from a parasitic cause. This, I believe, we have in epithelioma. It is as if a mass of tissue had passed away from the control of some nerve influence, which under ordinary conditions counterbalances trophic action. A history of injury and the existence of cicatrices may point to the existence of embryonic tissue of repair, which when unduly stimulated by heat escapes the nerve control which inhibits undue growth. That in some cases the stimulant which starts epithelial overgrowth is brought by the circulation is shown by the influence of the internal secretion of the ovary on mammary cancer and by the effect of arsenic in the production of epithelioma. The influence of this drug on the nervous system and on trophic processes, although little understood, is well known. It is possible that the epithelial proliferation may be due to a process akin to fertilization.

SUMMARY.

Kangri burn cancer is a typical squamous-celled epithelioma. In the early stages the malignancy is slight, it is too slow to infect glands, and is very amenable to operation. In late cases deep glands are involved, and in many cases owing to adhesions and brawny infiltration of the skin and cellular tissue it is inoperable. In many cases its origin is in scar tissue. It is demonstrably due to a definite cause, namely, irritation from the constant application of heat. In this respect it is similar to other epitheliomata resulting from mechanical, chemical, or thermal irritation. The nature of the cause is opposed to a parasitic theory of origin, and favours a trophic theory of cancer.

SEVENTY-EIGHTH ANNUAL MEETING

OF THE

British Medical Association.

Held in London on July 22nd, 23rd, 25th, 26th, 27th, 28th, and 29th.

PROCEEDINGS OF SECTIONS.

SECTION OF STATE MEDICINE.

The Right Hon. LORD IKEESTON, P.C., M.D., D.C.L., President.

DISCUSSION ON THE PROVISION OF MEDICAL TREATMENT OF SCHOOL CHILDREN.

OPENING PAPER.

By JAMES KERR, M.A., M.D., D.P.H.,

Medical Officer (Education) London County Council.

WHEN medical inspection became general, it was inevitable that provision for treatment should also follow. The nature of that provision for treatment has not yet been worked out, but as for the majority who live in populous places it is a measure of relatively greater importance than the provision for the smaller numbers in the country, I have no diffidence in coming here to introduce the subject, and to confine myself solely to the question as it affects the urban populations. I propose merely to sketch the topic in outline, and then to deal with it as it affects medical men and the members of this Association.

The practitioner turning into the schools without special experience soon produces enormous percentages of children returned as defective. Time will lead to these results being considerably discounted, but discount them as you will, large numbers remain who should have definite and careful clinical examination, beyond the school examination, and medical treatment.

The immediate suggestion which comes to mind is that the public or the patients should be safeguarded by a second opinion, and this is secured if the invariable rule be followed that no medical inspector should be engaged in treatment; or the converse, that treatment should only be done by others than the school medical inspectors.

Apart from the Poor Law, which cannot be named as giving any suitable provision for treatment of school children, there were only (*a*) the private practitioner, or (*b*) the charitable institutions.

All sorts of defects and disorders exist among children, but none are very numerous at school ages beyond four or five great groups. Taking them roughly in order numerically these are:

1. Children with caries of the teeth (dental cases).
2. Children with defective vision.
3. Children with aural defects, discharging ears, enlarged tonsils or adenoids, and nasal obstruction.
4. Children debilitated or anaemic and in tuberculous or pre-tuberculous conditions.
5. Children with ringworm.

Other defects or disorders are comparatively unimportant as regards numbers, and these five classes will include 95 per cent. of school cases.

The fourth of these classes (tuberculous and debilitated) can be removed from our immediate consideration, as medical treatment is of a second order compared with the necessity of existence in altered conditions of a hygienic and stimulating environment. These children will require separate consideration from any question of medical treatment at school.

There then remain dental cases, at present 95 per cent. of all school children; visual cases—10 per cent. of all school children have vision so bad as to affect their prospects in life, and another 25 per cent. require careful and detailed examination beyond what is possible in school. Aural cases, defective hearing, discharging ears, and abnormal conditions of tonsils, adenoids, throats, and noses, the numbers of these requiring treatment are, I think, greatly exaggerated. The serious cases may be taken as about 5 per cent., and another 10 to 15 per cent. as requiring careful examination and possible treatment.

Ringworm is trifling, and was only included owing to the failure of either doctors or hospitals to attain any practical remedy. It accounted for one-ninth of the absences, however.

Many years ago it fell to my lot before any one else to consider what was to be done with this mass of children. I satisfied myself at the time that, without further and more extensive arrangements, neither private doctors nor hospitals were able to offer material help in these cases. The dental cases were simply refused treatment other than extraction, and provision did not and does not exist for the numbers requiring conservative treatment. This, numerically, is the biggest part of the problem.

Determining the refraction of children's eyes is not exactly what any one would choose as the way of spending a summer afternoon, and the out-patient rooms were being choked up by these children.

The aural cases with discharging ears are beyond any help from hospitals; they are usually given a placebo and sent off. There is no hospital in London which even pretends to treat all such cases till cured. Ringworm treatment was equally ineffectual. Numbers of medical men cannot or do not recognize typical cases.

For the fees likely to be paid these cases were not worth while to the private practitioner, and practically not one in fifty ever appeared to get the slightest benefit from the private practitioner. To the hospitals these children were merely cases to be got rid of; they presented little interest to the doctors and brought no special credit to the institution. It was evident that for this group of dental, visual, aural and ringworm cases some general effort was required to bring the means of effective relief within the reach of all.

Now we have here a purely scientific problem of how to devise a method of obtaining the greatest benefit to these children for the least cost in time and money. The children's time must not be wasted from school or the

parents' from work, the doctors should be paid for their work, and the whole thing so organized that every one should have relief with the least cost and the least friction. The indifferent parent must have his child provided for as well as the one who is solicitous for the child's welfare. Evidently co-operation was the means at hand, and as every one would benefit from the improvement to be brought about, this requirement of medical aid of some sort, for 95 per cent. of the children, was just as eminently a matter for public provision and the public purse as was the provision of water, drains, or pavements or lights in the streets. The *Schulzahnklinik*, as worked by Professor Jessen at Strassburg, seemed to offer a hint for further development of medical treatment.

Since the matter was first considered, almost without discussion a bill slipped through Parliament and has now become an Act which I am afraid practically stands in the way of any successful general provision of medical or dental treatment for all elementary school children. Fortunately the London County Council had determined on a more cautious and politic plan of proceeding slowly and gaining experience before embarking on any extensive plan, and have made temporary arrangements with hospitals and other institutions. These arrangements probably will not be seriously affected by this Act, which makes the education authority charge the cost of treatment to parents, and for the present the existence of this Act destroys any possible idea of this medical treatment conferring charity on the parents.

The Council pays 2s. per head for every child treated at hospital, in many cases guaranteeing a minimum number, and also pays £50 per annum per half-day weekly worked by a medical man in such treatment. It lays a charge of somewhere about 4s. on each parent, and remits this for those in destitute circumstances, according to a wages scale. Now this is all new work; the proportion that went into medical men's hands previously as remunerative work was infinitesimal. The only objection I can see to be urged is that we are rearing a race who in adult life will be hospital habitués.

There is, however, still a good deal of confusion in many lay as well as medical minds as to these children who can afford to pay doctors' fees being recipients of charity in some way, because the ordinary hospital patient is in receipt of charity. There is no charity about this hospital arrangement for children: it is a pure business arrangement. The hospitals make some profit out of it; 2s. per head in large numbers pays the establishment charges and leaves a surplus, or else the shrewd business men who run the hospitals are out in their calculations, and the hospitals are dealing unfairly by their subscribers; £50 yearly per half-day spent weekly is the British Medical Association's scale for time spent in medical inspection; presumably, then, payment at the rate of £600 a year for his time is sufficient remuneration for the medical man. Surely no one can complain; not the hospitals; not the medical profession; and not the ratepayer; for the Council is charging the cost to every one, and it is only the destitute who are having this remitted, who certainly would not pay private practitioners for their trouble and pains.

But certain districts of London remained beyond reasonable reach of hospitals, and then in one district the suggestion was made that a committee of medical men might arrange to work a centre for treatment, corresponding to a hospital out-patient room. Such attempts are being made in Norwood, Hampstead, and Wandsworth. The County Council has treated them on the same lines as the hospitals, has provided some equipment, and given some aid in the services of a nurse. On financial lines, which are the only ones on which these schemes can be judged by the medical profession, the schemes would not commend themselves on the Stock Exchange. Lastly, we have a kind of model scheme set forth recently in the British Medical Journal, in which the child having been seen by the school doctor is seen again by another doctor who may later treat it, and he pronounces whether it should be treated at the public expense. I go no further; that scheme will never commend itself to business men, and whilst it may afford food for discussion at Branch meetings, I do not think it ever likely to come into the field of practical politics.

Now I have gone over in a very broad way the methods of provision of treatment for urban districts. Let me turn to their effect on the medical practitioner. The general practitioner has his difficulties—no one knows that better than myself, the fruit of long experience—but this work never was in his hands; it is practically all new work. It has nothing to do with his difficulties. This is not the place to deal with the troubles of the medical profession. Until the idea that there is something dignified in doing unpaid work whilst others "devil" most of it for you, in the hope of following you—until that idea is got rid of the profession will deserve to suffer.

Medical treatment of school children at the standard rate of £50 yearly for each half-day weekly then represents wholly new work for members of the medical profession at an average rate of £600 a year. What is wrong with that? Does the medical man suffer?

School clinics have been condemned by Branches of the Association because general practitioners think they would not be allowed to do the work. It is in diffusing this kind of judgement that the British Medical Association fails so signally. The Association wants two or three autocrats, not necessarily medical men, at £3,000 or £4,000 a year, to look after its interests, but the members would have to implicitly obey. The autocrats would prevent such mistakes.

If county councils ever run school clinics, or any other subsidized arrangements of this kind, I believe it will be to their interest to have medical officers giving part of their time and acting on a rota, serving only for 2, 3, 4 or 5 years as may be, and then retiring, but the councils who are custodians of the ratepayers' money ought to seek the best men they can get for that money, and if general practitioners are not elected, presumably it is their own fault. There can be no protection in favour of a selected class of the profession such as some of these gentlemen would appear to desire. That is neither in the interest of the public or profession. Whether in clinics or with associations of medical men, such as has been suggested, there can be none of this bolstering up of a class.

The same argument only holds for hospitals if every man holding such appointments is paid at the standard rate. Any medical practitioner acting on a hospital staff and seeing these children from the schools at less than the standard remuneration, however worthy his motives may be in other respects, is, in respect to his professional brethren outside, acting the part of a blackleg. I do not think this can be insisted on too strongly, and it is the only case where general or any other practitioners can have a logical case against medical treatment of school children as a public provision.

There is much more to be said on the question of treatment. Public provision for treatment of every school child is in the immediate future; let us make the best of it, sinking individual interests and opposition in the general welfare.

DISCUSSION.

Professor Kenwood (M.O.H. Bedfordshire) said all would agree that a right conception of the true ends of a State system of education embodied the recognition of the fact that, as physical defects impaired educational results, and in future years contributed to the ranks of the pauper population, a reasonable outlay upon preventive measures was a sound investment by the State. He then gave reasons for assuming that of school children handicapped by defects in their physical condition, 75 per cent. did not at present receive treatment. The best schemes for improving the matter had yet to be evolved; he said "schemes," because it was inexpedient even to attempt to introduce any uniform scheme for the whole country; the determining factor in local policy must be local circumstances. Whatever the scheme adopted, its working efficiency would be exceptionally taxed until arrears of treatment had been wiped off. Every decade would see the machinery working at less and less pressure. With a view to reducing the remedial work to be done by the education authority to a minimum, pains should be taken to impress on parents during medical inspections the importance of obtaining treatment. If possible the head teacher should be present and his co-operation in this matter enlisted. With the same end in view, efforts of prevention in the home and school should receive the

greatest attention. As for remedial treatment, the main difficulties were created by defects of vision and hearing, by ringworm, and the need for conservative dentistry. In country and small urban districts local practitioners were not as a rule prepared to undertake spectacle prescribing, and eventually the difficulty would have to be met by the appointment of oculists. They would be part-time officers who, assisted by a nurse, would work at many centres. The education authority would also contract for the supply of spectacles, and when possible recover part or all the cost from parents. Parents saw for themselves the need of treatment in cases of defective vision, but not in those of unhealthy throats, discharging ears, and dental decay. For conservative dentistry there was no provision whatever over wide county areas. Eventually children would probably be sent to various centres at which dental practitioners would attend to them at contract rates; or in some instances travelling dental clinics might be necessary. The great majority of the cases of enlarged tonsils and adenoids prevalent in both urban and rural districts, and whose detrimental influence on educational progress must have been very considerable in the past, could and would be dealt with by local practitioners. A scheme for dealing with ringworm was necessary. In rural areas it would be difficult to provide for the best form of treatment —that by x rays—except by affording travelling facilities to centres where the necessary apparatus was available, and where arrangements were made for treating school children on certain days. In respect of all defects when effective treatment was not obtainable at the hands of general practitioners, or parents could not, or would not, take advantage of it, the local education authority must consider what further measures should be taken. Merely pointing out the need for treatment did not, for many reasons and in many cases, suffice. The first step should be to make ready available any existing means, voluntary or otherwise, which might be requisitioned to provide the treatment not obtained either from private medical practitioners or the Poor Law guardians. It was most desirable, however, to refrain from measures tending to diminish the sense of parental responsibility, which had been emphasized by Sections 12 and 24 of the Children's Act of 1908. Even at the risk of some hardship and of making medical inspection unpopular, he would take advantage of these clauses and institute prosecution in appropriate cases. Nothing less would stir a certain class of parent. A prosecution might also serve to develop a parental conscience. He had faith in the power of legislation to develop public opinion. Every available means must be adopted of reducing to a minimum parents who were ignorant and careless, and not moved by a sense of duty or appeals and warnings. Most parents were ready to make considerable sacrifices to obtain a remedy for the defects pointed out to them, but many, while able to provide ordinary medical treatment, were unable to afford the greater cost of the special treatment sometimes required. In such cases the parents should pay what they could, and the education authority provide the rest, recovering it when possible on the lines adopted in the matter of school meals, which themselves constituted a kind of treatment. When special treatment was demanded, the medical practitioner would often recommend taking the child to a hospital, and to make it easy to obtain such treatment in suitable cases might be deemed desirable. The idea of education authorities subsidizing voluntary hospitals did not seem destined to gain general approval, and it looked as if the need of remedial treatment of school children throughout the country might urge every one on the road towards the nationalization of medical service. Possibly medical inspection would educate public opinion in the value of physical health among children, and thus lead to more parents making the necessary pecuniary sacrifices; but probably an increasing proportion of the cost would have to be borne by the education authority and less and less by philanthropists and the Poor Law, until at length the whole cost of remedial treatment fell on the rates and the State. Those who cared twopence for the future of their country would rather that this should happen than that much of the work should be inefficiently performed, or left entirely undone. If the advocates of such provision preached socialism they also preached imperialism. As an education and public health official, the speaker's first duty was to the school child and to the community as a whole; and, provided the work required was done, it was a matter of indifference to him whether those who did it were general practitioners or medical men appointed for this special work. Nevertheless, his desire to avoid anything in the nature of injustice to his medical colleagues would prompt him to advise that the general practitioner should first be given every possible chance to provide what was wanted in the nature of medical treatment, and the speaker would only advocate other arrangements when the paramount interests of the school child warranted this advice.

Dr. A. E. REMMETT WEAVER (M.O.H. Abertillery) said that in his own district, where the population of 35,000 was engaged in the coal mining industry, they had no hospitals within eighteen miles; but there were large colliery clubs whose doctors naturally did not appreciate having large numbers of school cases thrust upon them without extra payment. It seemed that a school clinic would help, and a small one had been established, at a cost of £120 to the education committee, to treat eye, ear, and skin cases. School clinics would be useful in many districts, but they were not a panacea for the whole of the difficulties. Schemes must vary in nature and scope according to the local needs and conditions.

Dr. WILLIAM HODGSON (Crewe) strongly advocated the claims of the general practitioner to carry out treatment, and objected to nationalization of the medical service. He considered it most unfair to assume that the Poor Law had broken down, and did not agree with Dr. Kerr as to its unsuitability for present-day requirements. The medical profession was not half so bad as it had been painted, but they ought to go slowly and use the means already at their disposal before resorting to new and untried methods.

Mr. CYRIL JACKSON (Chairman of the Education Committee, L.C.C.) said that medical inspection had been carried on for a long time in London, and an amount of defect had been found among children in the schools that was not being treated. The London County Council had decided that facilities should be given for such children as were not getting treatment. Only those quite unable to pay would be excused contribution. In many cases the parents already paid, and this was valuable as ensuring parental responsibility. They would go to their own local practitioners more readily in the future if they had learnt that they must pay, and that it was their duty to look after the health of their children. He agreed with Professor Kenwood that when they refused legal action should be taken. It was often the ignorance of parents that any defect existed that prevented their taking the children to the doctor. The School Care Committee could bring home to them the necessity of treatment. The County Council decided that the medical profession should be fairly treated. The usual arrangement was, as stated by Dr. Kerr, to pay for extra medical assistance for the special treatment of children at an adequate rate of remuneration, and where committees of local medical men were undertaking the treatment their time was paid for at the same rate.

Dr. DRURY (Halifax) said it had been suggested that the treatment of school children should be in the hands of practitioners specially appointed for the work, and it had been hinted that the ordinary general practitioner or Poor Law officer was not equal to the work. As a general practitioner he protested strongly against such a suggestion. If there was any truth in it, then 20,000 practitioners should forthwith be struck off the *Register*. As regarded the treatment of children, the school age was too late for many conditions which should be dealt with earlier, before chronic or permanent symptoms became fixed. There was in existence already a league organized to protest against voluntary inspection as it existed, and any attempt at legal enforcement would meet with great opposition. That league was ready to use any lever against medical practitioners. He was not surprised to hear that the treatment of school children did not cost much in London. When so much work was done for nothing, the cost was

naturally relatively small, but too much gratuitous work was one of the defects which seriously affected the general practitioner.

Dr. COOPER-PATTIN (Norwich) detailed the measures taken in Norwich. (1) As to dental caries. As soon as they received the sanction of the Board of Education a whole-time dentist would be appointed whose duty it would be both to inspect and to treat the teeth of the children in their elementary schools. The authority would treat the children of the necessitous gratuitously, and make such charges as it deemed right to the children of others, in no case exceeding the estimated cost of the treatment to itself. (2) Visual defects. In the case of those too poor to pay for private treatment, or who had been unable to obtain a recommendation for treatment at the eye infirmary, the authority paid for their examination by an ophthalmic surgeon of experience and distinction, charging a reasonable part of the cost of spectacles to the parents. (3) Aural and nasal troubles, adenoids, tonsils, etc. His authority at present made no provision for those, but half of them were efficiently dealt with by private practitioners and public institutions. (4) Cases of anaemia, tuberculosis, etc. These were sent as far as possible to the open-air school, which they hoped to enlarge in another year, when they acquired a newer and more permanent site. (5) Cases of ringworm in children of necessitous parents were, with the sanction of the Board of Education, treated at the municipal buildings. In making charges to parents the authority took into account the average weekly income per head in a family (rent being deducted). Dr. Cooper-Pattin concurred with Mr. Cyril Jackson as to the educative influence upon parents of medical investigation into the condition of school children, with the consequent discovery of unsuspected defects.

Dr. SAVAGE (M.O.H. Somersetshire) said he would confine his remarks to what had actually been accomplished in one of the largest rural counties—Somerset. The most satisfactory results were obtained in regard to defective eyesight. A skilled oculist was on his staff as a full-time medical officer. He examined presumptive eye cases referred to him at special centres, and prescribed spectacles, which could be obtained by the parents for 2s. 6d., at the rate of 6d. a week. It was very satisfactory to note that no less than 70 per cent. of the parents had paid in full by the end of 1909, and the money for the others was coming in. In only three cases had it been necessary for the County Council themselves to provide spectacles. Patients sometimes failed to turn up for inspection, and parents sometimes failed to provide the spectacles. That was usually due to carelessness or apathy, and the speaker had issued a leaflet warning parents of their responsibilities, and had obtained the sanction of his County Council to prosecute in cases of wilful neglect of bad eye cases. Verminous children were treated by a scheme of inspection by school nurses, which worked well. The other cases were referred to after-care committees. He believed Somerset was the first county to provide such committees, which entailed a great deal of correspondence and required a large clerical staff. On the whole the results had been fairly satisfactory. Out of 5,091 cases so referred up to the end of 1909, 3,377 case sheets had been returned to him. Of these, the results in 47 per cent. were satisfactory, in 15 per cent. partially satisfactory, in 5 per cent. no treatment was recommended, 16 per cent. had left school and the results were not known, while in the remaining 17 per cent. nothing had been done. The results varied greatly with the different subcommittees, from 82 to 31 per cent. of positive results.

Dr. BYGOTT (M.O.H. Barking) wished to emphasize the importance of the suggestion that they should proceed with caution. He thought Dr. Lyster did good service when he directed their attention to the source of medical help. There was a theory that every one could get adequate medical assistance by payment, charity, or the Poor Law, and that theory required the fullest investigation before it was laid aside. At the same time it must not be forgotten that Section 12 of the Children's Act, 1908, rendered it a very serious offence not to provide medical assistance for children. He deprecated strongly the setting up of school clinics under the education authority. If a school child needed treatment by a public body other than the guardians, it should be treated by the sanitary authority acting under the powers given by the Public Health Act, Section 131 et seq. By that means contagious skin diseases—ringworm, etc.—could be treated in the younger brothers and sisters of the scholars entirely apart from the question of their attending school. In Barking some treatment had been undertaken in cases of ringworm and minor ailments not usually treated by doctors, but which had a serious effect on the health of the scholars and on school attendance.

Dr. NASH (Wimbledon) spoke of the way in which general practitioners could carry out treatment in school clinics, and pointed out that the only fair basis of remuneration to all parties, in order to give efficiency, was on the basis of the time expended on the work. He deprecated the idea of sending children to hospitals.

Dr. MEREDITH RICHARDS (M.O.H. Croydon) differed from Dr. Kerr in his suggestion that treatment should be divorced from medical inspection. The medical inspector gained by undertaking treatment, because it varied the monotony of his work and made him a better diagnostician. State interference was justified on the grounds that the physical well-being of the next generation was as important to the State as their mental health, and medical treatment at the public expense could be justified by the same arguments as free education. He could contemplate without misgiving the assumption by the State of any duties which civic organization could perform more efficiently than private enterprise. In their professional capacity they must not dictate to politicians what were and what were not the duties of the State; and he feared that the Association would be treated with scant courtesy by whichever party was in power if it attempted to check developments that were determined by political considerations. In urging their authorities to undertake treatment they were told that they were proposing to assist the survival of the unfit by helping the improvident. At present it was often the least deserving who got the most efficient treatment in their Poor Law schools, hospitals, and infirmaries; and what they contemplated was the offer of similar opportunities to the more provident and more deserving. As to parental responsibility, in his experience this argument was most often urged by those who were seeking an excuse for doing nothing. In any case children were not designed for the moral regeneration of their parents, and parental responsibility was, in fact, increased by the opportunities offered for securing the well-being of their children.

Dr. KERR, replying on the discussion, said that the welfare of the child was of greater importance than the particular moral attitude of the parent. The inspector should never treat the children whom he inspected, but might treat other children. He agreed that there was no future for the Poor Law in respect to school children. The arguments against school clinics or hospital treatment because other than general practitioners might carry out treatment was no slur on the general practitioner. It simply meant that public authorities must secure the best medical aid possible; and as a matter of fact in London many general practitioners were selected in preference to others with higher qualifications, because they happened to be in other respects more suitable for appointment.

A DEFENCE OF THE HOME TREATMENT AND PREVENTION OF SCARLET FEVER.

By ROBERT MILNE, M.D.,
Medical Officer Dr. Barnardo's Homes and Hospital.

MY best thanks are due to the Association for this opportunity of laying before my medical brethren my experience and conclusions in regard to the treatment and prevention of scarlet fever. My aim is to substantiate fully the conclusions arrived at in my publication ("A Plea for the Home Treatment and Prevention of Scarlet Fever," James Nisbet and Co., 22, Berners Street, W.), and in the words of Dr. Bond, of Gloucester, in the BRITISH MEDICAL JOURNAL of 14th May, 1910, to make every unprejudiced mind feel that

"scepticism is no longer possible." Also, further, to show that the method of treatment is equally efficacious in the overcrowded homes of the poor as in the mansions of the well-to-do.

While deeply realizing my responsibility in advocating such a revolutionary proceeding, it is only the firmest conviction of its value and its success that has led me to adopt an attitude apparently so antagonistic to that established by law and custom. The facts I have already placed before the profession, together with the fresh evidence I am to lay before you, drawn not only from my own experience but from that of many others will, I trust, convince all.

Although the treatment and its advantages are fully described in my publication, it will be well to give a short summary of the same, mention its advantages, and then demonstrate my position and conclusions.

For twenty-six years I have used pure eucalyptus oil. During the first four days in a scarlet fever case, commencing at the earliest possible moment, I have pure eucalyptus oil gently rubbed in, morning and evening, all over the body, from the crown of the head to the soles of the feet. Afterwards this is repeated once a day until the tenth day of the disease. The tonsils I always swab with 1 in 10 carbolic oil every two hours for the first twenty-four hours, rarely longer.

This being the simple and easy mode of treatment, let me say a word or two about its advantages.

1. When this treatment is commenced early secondary infection never occurs and complications are unknown. How serious a question is that of complications is borne out by a remark of a scarlet fever superintendent. He said:

> After a short time we have not only the scarlet fever germ infection to contend with, but other germs, secondary to this, causing us the very greatest trouble.

Again, Garlip says:

> The tonsils are extremely susceptible to the invasion of streptococci, as they are deprived of their resistance by the scarlatina toxin. By this path may gain entrance the dreaded scarlatina diphtheria, suppuration of the glands, severe phlegmon, and eventually general sepsis.

On this I ask whether all these troubles, which may come on in an hour or two, may not be caused by these secondary infections?

2. With this treatment carefully carried out, I have no hesitation in allowing children to occupy the same room, or even to sleep in the same bed. Therefore isolation is unnecessary.

3. *The Economy of the Treatment.*—One medical officer of health reported that 30 cases due to milk infection cost £300 for isolation—by no means an overestimate. As in one year London has some 152,000 cases, a specialist's estimate that it would save England many millions annually is no exaggeration. What it means to the world no one can estimate. The cost of the treatment I advocate is at most 2s. or 2s. 6d. per case.

4. *Its Household Economy.*—The mother is free to attend both the patient and her duties. The father is free to go to work without the slightest risk, and the children are equally free to attend school.

5. No after-disinfection is necessary, for, the disease having been destroyed, nothing remains.

Thus there is no interruption of the domestic, scholastic, or business affairs of the household. All the inmates are free to pursue their ordinary callings.

Questions have frequently been asked about the disinfection of the patients' spoons, crockery, etc., as these are such a trouble in an ordinary household. There is no disinfection or in any way a keeping of these apart. They are all collected together, washed in the ordinary way, and served out indiscriminately on the next occasion.

The hair is never cut short, neither does it fall afterwards. All the toys and books are frequently exchanged with the healthy children, and are not destroyed afterwards.

Dr. Goodall, in the *Medical Annual* 1910, quotes that in a ward were 22 children and 4 mothers with 4 babies all under four months; that scarlet fever broke out, that every one of the 22 children and 1 of the mothers were attacked, but none of the babies.

With this contrast the following experience. A child of 7 years of age, in one of Dr. Barnardo's Homes, on the fourth day after exposure to infection, developed scarlet fever in February, 1910. In the same room were 24 children under four years of age. They were in the same room all the time, except when out at play. After the tenth day the child was out of bed and mingled freely with the others in all kinds of games. During the whole time they played freely with the child, and even when in bed the toys were freely exchanged. Altogether during the six weeks she mingled freely with 128 children, of whom sixty were under seven years of age. Many medical men saw the case at various stages of the disease. Several examined the case about the eighth day, while some sixteen of the children crowded between the examiners and leaned over the bed, looking as if they understood it all. The seniors looked at one another, smiled, and said, "After this it is only a question of time till isolation ceases." For there was no infection or complication.

An outbreak occurred in the Cottage Home, Kingstown, in February, 1910. Fifty-one children were in residence; only 1 had previously had scarlet fever. These, except 4, were under 7 years of age; 3 were removed to the isolation hospital; 1 of them there suffered with glands. The disease spread rapidly until some 24 cases were laid up. On the fifteenth day the method of treatment I have used was adopted. On the eighteenth all the children mingled together; yet the infection ceased. Dr. Burnet Smith, the honorary medical attendant, wrote me as follows:

> When I undertook your method of treatment I was inclined to be doubtful; but now I can say I am more than pleased with the result. There is no doubt in my mind that the method of treatment as recommended by you not only prevents the infection, but complications.

Could any one more aptly parallel these outbreaks? Could the annals of medicine afford a greater contrast in the results than that given by my reviewer, and the case in one of Dr. Barnardo's Homes and those at Kingstown? Surely my reviewer by next year, having read all the facts, will find that the treatment is, after all, of some value.

In the Barnardo institutions under my care there are 4 cases at the present time. They have been seen by other medical men, and I extend a cordial invitation to any member of the Association or the medical profession to visit the hospital of Dr. Barnardo's Homes at Stepney Causeway on Friday next, between 2 and 4 o'clock, where I would gladly meet them and show them the cases. Two are in the hospital of the Homes; one has been since the first day in the surgical ward with some 15 other cases; he is between 2 hernia cases who were operated on two days after his admission; another is in a home with some 50 others, and since the tenth day all have been together. The other case was with 5 others for ten days, and she has since been with 13.

One of the cases I have referred to was not properly treated until the fourth day. By that time the throat was in a very bad condition. The whole system and course of the disease, even to a heavy septic secondary rash, with bronchial attack, most severe vomiting, diarrhoea, and dysentery, showed the virulence of the secondary infection. Yet the symptoms gradually subsided, and the patient is doing well. As soon as she could be moved, the patient was taken to our hospital in a special ambulance. The inspector visited the house and demanded of the matron the reason for the removal; he said, further, "No more cases, if they occur, will be allowed to remain, remember!" A case from the same district appears in my plea.

Several medical men have asked me to see some of their children through by this method. One of these adopted the same with a private patient. On the eighth day, when he visited, he found the sanitary inspector had called and insisted on the removal of the child. I know not what his feelings then were, nor what he felt when, four days after the child's return from isolation, another brother was down with scarlet fever.

Private medical men have suffered a grievous wrong in connexion with this matter. When they had arranged for this method of treatment being carried out in the patient's house, even when a nurse was carrying out the treatment, on their next visit they have found that the sanitary authority has swooped down, like an eagle on its prey, and insisted on carrying off the patient to the isolation hospital.

To show the efficacy of this method in the poorest and most overcrowed homes, I give the following. A well-known medical officer of Health wrote:

A friend of mine, a doctor in this city, tried your method in a case. He did not want to have the child removed on account of the mother's condition. There were six children and parents in a small house of two rooms. He took the risk of not notifying the case, and carried out your method, personally. Neither infection nor complication occurred. You must not give names, as we may all get into trouble.

In a poor house a medical man was carrying out this method of treatment. The mother was expecting in ten days. The baby arrived on the fourth day. I have known of seven such cases within a week of the child's attack; yet there was no trouble. Could the ingenuity of man devise a harder test, for this is a terrible dread in such cases?

I would most strongly impress on all medical men the great care that is needed in carrying out the treatment, and also the necessity for commencing the treatment early; for, should a secondary infection occur, which appears so apt to attack the weakened tonsils, then complications of any kind may arise. It has been suggested that nurses alone could carry all this out. Decidedly no! They must be under the care of a medical attendant whose is the responsibility and whose directions must be implicitly followed.

A medical officer of health was greatly struck by the fact that we have no isolation hospital or building of any kind to serve this purpose. For some twenty years a number of cases of measles or scarlet fever has been unknown. The only exception has been described in my book, where the cause is also given. Measles will, I trust, soon be in line with the experiences I have given of scarlet fever.

My aim has, I trust, been attained. What can a meeting called for opposing this method with its undeniable facts do? Simply dismiss. No longer may we read by an able author that I would have attained the same results without treatment. This in spite of his having seen at his own request fresh cases, red as a boiled lobster, with characteristic tongue and throat; in spite of having examined for enlarged glands and other complications some six peeling children as they lay side by side with the most serious operation cases, as reported in my book; in spite of having seen and handled all this in the spring of 1909, yet he does not condescend to mention it in his review of 1910, neither did he tell me that I would have had the same results without any treatment.

Never again, I trust, will we hear of cases being kept for three months, and longer, for ear trouble. For although I have had no such case arise, in chronic cases they have been treated in the ordinary way of this method without any bad effect.

I trust that our friends and our Journal will no longer stand aloof, but speedily find in the treatment all the advantages that a reviewer did when he said, "I endorse every word of it, for I have tried it," and put their shoulder, with others, nobly and loyally to help us onward in this altogether revolutionary, but most brotherly and Christ-like work, for our suffering children. I say for our suffering children, for having shown both in my pleas and to-day, not only from my own, but from the experience of others as well, how harmless scarlet fever is when treated early by this method, surely we can see our way, as I and others have so strongly advocated, not to close our isolation hospitals, but to make them health-giving centres for the failing children before they become seriously ill. This will render a service of untold benefit for our future men and women—the fathers and mothers of future England.

DISCUSSION.

Dr. Nash (Wimbledon) said he had had the opportunity recently of seeing the cases Dr. Milne spoke of. It certainly undermined all ordinary ideas when one saw a case of scarlet fever peeling profusely in a general surgical ward, playing without any restriction with its bedfellows. Municipal authorities would want to know more about the treatment before spending large sums on extending isolation hospitals.

Dr. Brown (M.O.H. Bacup) said after nearly thirty years' experience of the treatment of scarlet fever by the inunction of carbolized oil over the body, daily, with a warm bath the following morning, with the burning of a small quantity of brimstone two or three times a day, it was rarely that a second case occurred. The advantages were: that the patient's skin was soothed and he slept better: that early peeling resulted; duration of the illness lessened; there was rarely any complication. In his district they had no isolation hospital, and their results would bear favourable comparison with those where isolation was adopted. This important question needed consideration by the Local Government Board and the sanitary authorities. His own experience confirmed to some extent the views of Dr. Milne, and if these were correct, and his plan carried with it all the advantages enumerated, it ought to be adopted. It was generally believed that cases treated in the hospitals were liable to greater severity—by the fact of so many being treated in one place, then that was a great point in favour of Dr. Milne's suggestion.

Dr. McWalter (Dublin) said the cost of isolation hospitals had been calculated at three millions sterling, and most of them had come to the conclusion that the isolation treatment of scarlet fever was a failure. He was strongly in favour of Dr. Milne's treatment.

Dr. H. Beale Collins (M.O.H. Kingston-on-Thames) said that he had seen Dr. Milne's cases. He found that on one occasion a boy who had not been visited by the doctor escaped to an adjoining ward. He was found later on to be suffering from scarlet fever, and afterwards three or four others in the ward to which he escaped also developed scarlet fever. Thus the only untreated case was the only case by which the disease was spread. Scarlet fever at present seemed to show very slight infectivity, and the death-rate for this disease was less in Kingston-on-Thames, where there was no isolation hospital, than in the adjoining towns of Richmond and Wimbledon, with large isolation hospitals.

THE TUBERCULOSIS PROBLEM IN COUNTY AREAS.

By A. H. Hogarth, M.B., B.Ch.Oxon.,
County Medical Officer of Health, Buckinghamshire.

Of far greater importance than the annual death-rate, or the total number of deaths from phthisis of persons who should still be in their prime of life, is a point which is commonly ignored by sanitary officers, namely, the fact that every death recorded implies many years of incapacity from work and uselessness to the community.

What practical steps can be taken to face the tuberculosis problem in county areas? The stock answer is that measures (*a*) educational, (*b*) preventive, (*c*) curative, may be adopted.

(*a*) *Educational measures* are of two kinds: (1) In the school, and (2) in the home. The school aspect of the tuberculosis problem is of the utmost importance, but would furnish sufficient material for a separate paper and discussion, and therefore must be passed over. But the educational treatment of consumptives as well as of susceptible persons, and even of the apparently healthy themselves, is necessary, and can be carried out in the home. And who can undertake this duty better than *local medical practitioners* (the family doctor)? It is, or should be, the function of all medical men to prevent disease, and the British Medical Association must see that general practitioners are in the near future paid for their services to the State as well as to the individual.

In a lesser degree educational treatment of consumptives in their homes can be undertaken by sanitary officials, medical officers of health, district nurses, and health visitors. It was with the object of enlisting the sympathies of local medical men in this work of prevention that the Bucks County Council issued a simply written pamphlet on tuberculosis, copies of which are now submitted. The pamphlet has been widely circulated through the county, partly through the agency of local medical men, and partly through district visitors, sanitary inspectors, school teachers, and others.

It may be regarded as a preliminary step in a campaign to educate not only consumptives and their families, but also *public opinion* on three fundamental points in the treatment of consumption, namely, diet, rest, and fresh air, each of which is equally important, though, as a rule, fresh air and prevention of spitting is the only gospel that is commonly preached.

(*b*) With regard to *preventive measures* I do not propose to enter into any details, as we are for the most part in agreement as to their necessity. Nor is this the occasion to set on foot a discussion as to the advantages and disadvantages of notification. I incline to think that notification of phthisis can only be justified in those areas where definite practical steps have been taken for the treatment of all cases which are notified. Of what value is it to know that a "poor person" is consumptive unless something practical is done to help him? and what is the good of a medical officer of health trying to keep a "poor person" from infecting other members of his family if they are all short of food? The usual preventive measures—disinfection of premises, provision of spitting-cups, etc.—however important in themselves, are not the first or the most essential steps in the solution of the tuberculosis problem, and, if children are not taught the essentials of healthy living at school, pamphlets of instructions ought to be distributed indiscriminately to sick and healthy alike.

For these reasons I do not favour any system of voluntary or compulsory notification of tuberculosis until public opinion is much better educated as to the real nature of the problem to be solved. When adequate provision has been made for the treatment of early cases and for the segregation of advanced cases, then will be time enough for notification. Have not the Local Government Board put the cart before the horse?

The question of veterinary inspection of cattle and the elimination of tuberculosis from dairy cows is a technical public health problem which cannot fittingly be discussed to-day.

(*c*) *Curative Measures.* — If we are to solve this tuberculosis problem, it is deeds not words that are wanted, and the solution lies in undertaking forthwith in all districts some definite and practical measures for segregation and treatment. Here, of course, the financial aspect of the problem is the great stumbling-block, and it is for this reason I venture to submit some points for consideration. In rural counties, at all events, it will be more economical in the end, and more satisfactory in practice, to have recourse to some well-considered scheme of home treatment than to establish a county sanatorium. And if this is so, medical officers of health must look to the support of *local practitioners*. At present I cannot advise my County Council to establish a sanatorium, for the following reasons:

1. The results of sanatorium treatment in other counties and elsewhere are far from encouraging. Results only appear to be really satisfactory when the cases are very carefully selected.
2. Satisfactory administration does not appear to be easy in a county sanatorium.
3. The heavy expenses and outlay scarcely justify an experimental undertaking in this matter.
4. The after-treatment of consumptives is even of greater importance than the so-called "cure," and is not provided for at sanatoriums.

Early diagnosis is the first step towards curative treatment, and for this purpose the ready co-operation of general practitioners and the education of public opinion are essential factors. Surely money would at first be better spent on the establishment of county laboratories than of sanatoriums.

But is it not practicable to treat the vast majority of consumptives (at all events in rural counties) at their own homes and on strictly economical lines? I do not know the history of any such scheme, but I think Dr. A. E. Lyster, of Great Baddow, near Chelmsford, may be regarded for all practical purposes as the pioneer of the movement I wish to bring before your notice, and as I am trying to introduce his scheme into Buckinghamshire, I venture to describe it briefly.

Dr. Lyster has designed a skilfully-constructed shelter of wood and canvas, varying in size from 8 ft. by 8 ft. to 12 ft. by 12 ft. In its present form (which has been evolved as the outcome of ten years' experience) it has the following advantages over the ordinary hut or revolving wooden shelter:

1. It is altogether pervious to light and air.
2. By means of a system of canvas shutters or blinds, the shelter can be entirely opened on one side or on all sides, or it can be entirely closed. Obviously the shutters can be pulled up to windward and down to leeward. On cold nights, the whole shelter can be closed, and even then enough fresh air comes through the pervious canvas. It has stood the test of time. At least one shelter has been in constant use for seven years and they may all be regarded as storm and weather proof.
3. The shelter can be erected in any cottage garden or field and can be built to accommodate one or two patients.
4. The shelter can be used either for the isolation of advanced cases or for the curative treatment of early cases.

Dr. Lyster, being Poor Law Medical Officer of the Fourth District in the Chelmsford Union, has treated in such shelters nearly all the cases of consumption which have occurred in his district during the last ten years, and he is able to show a large percentage of recoveries. He also claims that he has practically freed his district from phthisis, and that now nearly all the patients occupying the shelters in his district either come from the other side of the county or from the metropolis.

The recovery-rate of patients treated in these shelters may or may not be better than elsewhere. I am not aware that Dr. Lyster makes that claim. A certain number of patients have died, but they have died in comparative comfort at their own homes *and in isolation*.

Ten years ago Dr. Lyster began by erecting a single shelter in a cottage garden. The idea was gradually taken up throughout his district of the Chelmsford Union. Then groups of shelters were established, and now Dr. Lyster has under his supervision a small colony of shelters for the simultaneous treatment of ten cases—a miniature sanatorium at which initial outlay and administrative expenditure are reduced to a minimum, and yet the three essentials—namely, (1) a sufficiency of suitable food, (2) adequate periods of rest, and (3) fresh air, are provided in abundance.

In Buckinghamshire I am first of all trying to educate public opinion in as many parts of the county as possible as to the practicability of treating consumptives in similar shelters at or near their own homes. Several of the local medical officers of health have begun to interest themselves in the scheme in its experimental stage; and through the agency of the County Nursing Association and its affiliated societies I am hoping that the idea will take root in many districts. As a scheme it is only semi-official in Buckinghamshire, and the shelters at first are to be supplied by private subscription. But the following procedure has been adopted:

1. Any patient so treated is to be under the care of a local medical man, or, if a Poor Law case, of the district medical officer.
2. The District Nursing Association makes itself responsible, through the district nurse, for the carrying out of the doctor's orders, and for the supervision of the patient and his environment.
3. The local medical officer of health (or the county medical officer of health) must be satisfied that precautions are taken for the adequate isolation of the patient in accordance with ordinary preventive measures.

So much for the general outline of the scheme. It is the general principle—namely, the home treatment of consumptives by local medical practitioners—that I wish to emphasize. Obviously, the details must be worked out to suit the convenience of individual authorities.

A similar scheme might well be adopted by Poor Law guardians and sanitary authorities throughout rural England, where there is no difficulty in securing sufficient open space for the erection of half a dozen shelters, each to house two patients. If such a colony is established in the grounds of a Poor Law infirmary, the administrative arrangements would naturally be part and parcel of Poor Law administration. But probably the better plan is to establish small colonies of ten or twelve patients in a field, and to employ (as Dr. Lyster has done) a man and his wife, who live in an adjoining cottage, and one assistant to look after the patients—that is, to do the catering, cooking, washing of clothes and scrubbing of shelters, to empty spittoons, slops, etc., to supply hot-water bottles, etc.

A few words as to cost. If single patients are treated at their own homes, the only outlay is the initial cost of the shelter, which might be provided either by private

subscription, by the sanitary authority, or by the board of guardians. If several patients are treated together in colonies, it should be possible to obtain the services of a cottager and his wife to do the catering and to undertake the general duties indicated above for £1 a week per head; and thereby local tradesmen are benefited.

At all events, whatever particular form of the Lyster system is adopted, obviously there must be enormous saving in bricks and mortar, as well as in the fees of architects and sanitary engineers.

It is also possible to follow up the scheme on a larger scale, and Dr. Lyster has worked out a plan for a small sanatorium (of 100 beds) constructed on these lines, with a brick building for the administrative block, at a total cost of £60 a bed, whereas the ordinary sanatorium of the past ranges from £100 to £200 a bed, and the cost of administration and upkeep is correspondingly heavy.

I have purposely confined my remarks as far as possible to general principles. There will be no difficulty in adding refinements such as the provision of suitable exercise for patients in the form of garden and farm occupations.

PART-TIME MEDICAL OFFICERS OF HEALTH.

By F. E. Fremantle, M.A., B.M., M.Ch.Oxon., F.R.C.P., F.R.C.S., D.P.H.,
County Medical Officer of Health for Herts.

In considering the relative parts played by medical men as part-time and whole-time officers of health, it is of interest to consider the history of an appointment which has been largely responsible for the diminution of the death-rate in England and Wales from 23.7 per 1,000 in 1864 to 14.5 in 1909, for the saving, that is, in 1909 alone, of 325,000 lives in the population.

The history of sanitary affairs in England down to 1897 is written in the classical pages of the late Sir John Simon's *English Sanitary Institutions*, a book which should be studied for the sake both of its interest and importance by every officer and student of the public health.

The origin of the appointment of medical officers of health lies in the establishment by Government, in the reign of King William IV in 1831, of a consultative Board of Health, consisting of the President of the Royal College of Physicians (Sir Henry Halford) as Chairman, with four Fellows of the College, the Superintendent-General of Quarantine, the Director-General of the Army Medical Department, the Medical Commissioner of the Victualling Office, and two non-medical civil servants—the Comptroller of the Navy and the Deputy Chairman of the Board of Customs—with a paid medical secretary. The occasion of their appointment was the first outbreak of Asiatic cholera in Europe, which touched England in 1831–3, and was the subject of special inquiries by a medical inspector under the board, Dr. McCann of Newcastle. In 1834 Mr. Edwin Chadwick was made Secretary of the new Poor Law Commission, which in 1838 reported to the Home Secretary, Lord John Russell, the need of powers for the prevention of

> charges on the poor rates, which are caused by nuisances by which contagion is generated and persons are reduced to destitution.

In 1839 the House of Lords voted an inquiry, the results of which were published in three volumes in 1842, one of which, entitled the "General Report on the Sanitary Condition of the Labouring Population of Great Britain," was the work of Mr. Chadwick. This report included a recommendation,

> That for the prevention of disease . . . it would be economy to appoint a district medical officer of health independent of private practice, and with the securities of special qualifications and responsibilities to initiate sanitary measures and reclaim the execution of the law.

In 1847 the Town Council of Liverpool, by power of a private act, first appointed a medical officer of health in the person of Dr. W. H. Duncan. In 1848, under the City Sewers Act of that year, the Corporation of the City of London appointed Mr. John Simon, Surgeon of St. Thomas's Hospital, as their first medical officer of health. In 1855 a small bill gave the General Board of Health power to appoint a medical officer, and Mr. John Simon was so appointed. The Metropolitan Management Act of 1855 required the fixed appointment of medical officers of health in all districts of the metropolis, and all 48 appointments were made by the first quarter of 1856. The Royal Commission of 1869-71 recommended the compulsory appointment of medical officers of health by every local authority; Mr. Stansfield, in his Public Health Act of 1872, provided for such appointments to be made by every local authority; by 1873 three-fourths of the authorities had made their appointments, 1,104 out of 1,468.

Mr. Chadwick's original suggestion was for officers "independent of private practice." The first legislation on the subject looked on the officer of health as by qualification an expert specialist, and by duty a public accuser and adviser. But the Royal Commission of 1869–71 proposed that each local sanitary authority should have at least one medical officer of health, his appointment to be subject to the veto, and his removal subject to the sanction of the central authority; that commonly, at least in rural areas, each district medical officer under the Poor Law should be the officer of health for his own area. This manifestly ignored the earlier proposals with regard to officers of health, both as to their qualifications and their duties. But in 1871 the medical labour market, Sir John Simon tells us, was not ready to supply so large a quantity of the special material required; and Mr. Goschen, therefore, in the first bill introduced by the Government to give effect to the views of the Royal Commission, proposed only to give power to local authorities of parishes, unions, or counties to appoint officers. Mr. Stansfield, however, in succeeding Mr. Goschen as President of the Poor Law Board, preferred universality to quality, made the appointments compulsory, and obtained a vote of £100,000 for the half-payment from the Exchequer of the salaries, specially favouring the appointment of Poor Law medical officers as health officers for their areas, and only as an amendment giving power for the same officer to be appointed for two or more sanitary districts. The result shown in the return in July, 1873, was that out of 1,468 districts 1,104 had made appointments. Their classification may be compared with that of medical officers of health in 1910, the figures for which have been kindly supplied to me by Dr. Crookshank, no official information being available.

	Districts.	1873.	1910 (for 1,699 districts).
Whole-time officers for combined districts	108 Urban, 142 Rural	35	75
Whole-time officers for single districts	16 Urban, 7 Rural	23	250
Part-time officers for combined districts	128 (not specified)	29	25
Part-time officers for single districts	437 Urban, 266 Rural	703	1,100
Totals	1,104	790	1,450

Thus in 1873 there were 378 districts in combination; in 1909, according to the annual report of the Local Government Board for 1908–9, there are 244; in 1873 there were 726 single districts (453 urban, 273 rural); in 1909 there are 1,455 (906 urban, 506 rural, and 43 port).

In 250 out of the 453 uncombined urban districts the average salary in 1873 was £14 10s., and no salary was over £25; of the 273 uncombined rural districts, 81 had among them 360 health officers with an average salary of £21 10s.; while some officers were given only £2 or £3 per annum, or no salary at all. No wonder the Local Government Board adopted a policy of pressing for whole-time appointments wherever possible, although the legal provision for combined appointments was most defective, and there was no sort of safeguard for the reasonable stability of the joint appointments. The Board held that all authorities should aim, either separately or in combination, at the appointment of high-class officers, specially skilled and adequately salaried, who should give their whole time to the public service, and for whom the Poor Law officers should act as assistants. The officership of health, in certain aspects of the work, was an office for the redress of wrongs; it was to that extent judicial, and required an impartiality not

easily compatible with the position of a private medical practitioner, whose patients and patrons might be the owners of property which his duties as an officer of health should lead him to injure or condemn. It seemed, therefore, advisable that officers of health should be exclusively engaged in public services, should hold office only during good behaviour, and should be protected in their office against the adverse effects of private resentment.

How have the last thirty-seven years borne out these conclusions? In the first place, as regards the supply of material for whole-time public health appointments, although the number of diplomates in public health increases every year, the prospects of the whole-time service are insufficient to attract a large number of the best applicants. Even the minimum salary of £500 a year is not strictly maintained; the highest salary is only £1,500 a year; there are not a dozen appointments reaching £1,000 a year; there is still no security of tenure; there are few by-paths by which to add to the salary. We hear, therefore, this year of a well-known medical officer of health resigning his position and entering into private practice; the ablest men at the hospitals seldom choose public health work for their career; and even now, out of 1,450 medical officers of health in England and Wales and Scotland, only 325 give their whole time to their official duties, and 1,125 are part-timers. Whether we wish it or not, the sanitary service must for a long time to come be staffed by part-timers, unless salaries for whole-time appointments be raised so as to give every average member of the service a reasonable prospect of realizing £700 a year with pension, the abler men £1,000, and the best men £2,000 or £3,000.

In case no such provision is made in the near future, let us briefly summarize the points in favour of the experienced, tactful, and conscientious holder of a part-time appointment:

1. He is in privileged relation, as their family doctor, to a section of the population in his district. In direct touch with the homes and lives of the poor, he knows best what is defective, what improvements are practicable. In direct touch with squire, dairyman, or butcher, he can often get improvements effected by advice and influence, when statutory action may be impossible, inadvisable, or ineffective. He is in far closer daily and lifelong touch with his district than is the whole-time officer with most parts of his combined sanitary district.

2. His main income is usually derived from private practice; his official salary repays him but scantily for the work, friction, and responsibility which his appointment entails. He is not, therefore, in the main dependent on his official salary for his livelihood; indeed, he may actually gain in reputation, as well as in leisure and private practice, if deprived of his office on account of official action conscientiously undertaken. The whole-time officer, on the other hand, if dismissed, joins the ranks of the unemployed, and will find it most difficult to secure a fresh office, even success involving an uprooting of his home and friendships. It is not the part-time officer who is most influenced by the wishes of the district council and their advisers and electors.

3. The medical practitioner, engaged in clinical as well as preventive work, is constantly thinking out the pathology of disease and the limitation of physiological function, thereby freshening his mind for the work of preventive medicine, questioning its axioms and revising its methods. The divorce, indeed, of preventive from clinical medicine is a serious and fundamental defect in the ideal of whole-time appointments, a defect emphasized by the outcry against a recent proposal to remove fever hospitals from the sphere of the appointment. In a discussion as to the title of medical officer of health, Dr. Newsholme remarked a few years ago that he valued the titular prefix of "medical," as he valued the clinical part of his duties. Public health, indeed, is not a speciality in medicine; it includes the whole of medicine, both preventive and curative, in its relation to the State. As for fevers, so for the far larger range of general medical practice, it concerns itself with every ailment, including many for which a system of prevention has yet to be worked out. And the very change of work brings relief to the part-time medical officer from the drudgery of private clinical practice, and gives freshness to his energies.

4. To the medical profession as a whole it is greatly to their advantage that such plums as are available should remain for distribution amongst them. Professional feeling usually prevents a part-time medical officer of health from taking unfair advantage of his position for the benefit of his private practice; and as a general practitioner himself he has more in common with his brother practitioners than has the whole-time specialist.

The fact remains that the country must either pay for establishing whole-time appointments on a sound financial footing or else must depend on part-time officers for a large place in the sanitary system; that in the latter case a closer co-ordination and supervision of their work is required than can be provided by the Local Government Board; that this might well be effected, as Mr. Goschen provided in his bill in 1871, by giving the county councils and county medical officers of health proper responsibility as sole and essential intermediaries for all purposes between the Board and the local authorities; that the medical profession and the General Medical Council should insist on the better education and qualification of all medical men in public health work, and should press for proper terms and security alike for the part-time as for the whole-time officers.

Medical inspection of school children and the proposals for Poor Law reform give a favourable opportunity for considering afresh the relation of preventive and curative medical work in the public service; and I trust the result may be to retain the localization of the work within limited areas, to promote the reunion of the three departments of State medicine, and to make every medical man, paid by the rates, an assistant medical officer of health for the houses or institutions which he serves.

I should like to see every district medical officer of health serve an apprenticeship as district medical officer under the Poor Law; I should like Parliament and the Local Government Board to throw the whole responsibility for district sanitation in the counties on the county councils, in the same way as the brigadier in military organization is held responsible for every unit in his command.

I would submit that it is character which tells; and that a medical man with tact, influence, and geniality will do more good for the public health as a part-time medical officer of health than will a whole-time officer of inferior personal merits. The appointment, now compulsory, of county medical officers of health, independent of private practice, gives sufficient reason for revising the policy of the Local Government Board, which in thirty-eight years has failed to attain its object in the matter of district appointments. Where, as I know in Hertfordshire, men of quality and good standing are appointed to the districts, and where their work is properly co ordinated by conference, correspondence, weekly circulars, and personal supervision, the only thing required is security of tenure, to make it of quite minor importance whether whole-timers or part-timers are appointed for the district work.

I venture, therefore, to conclude—as, I think, will be generally agreed—that part-time medical officers of health have in the past played a most important part in the advancement of public health; that their special clinical experience, their personal intimacy with patients, and their comparative financial independence, give them exceptional opportunities for securing acceptance of their views; and that the interests of public health will be best promoted by securing a better education of all medical men in public health work than in making any rule to separate preventive from curative work in the activities of the medical profession.

DISCUSSION ON THE REFORM OF DEATH CERTIFICATION.

OPENING PAPER.

By Sir WILLIAM COLLINS, M.P., M.D.Lond., F.R.C.S.Eng.

IN opening the discussion, Sir William Collins said that he had paid a good deal of attention to the subject of death certification since 1893, when he was Chairman of the Public Control Committee of the London County Council. He considered the state of the law in England to be most unsatisfactory, and positively dangerous. He had been spokesman for three deputations to three successive

Lord Chancellors to urge reforms, and received plenty of official sympathy, which was at once so helpless and so hopeless. But nothing had been done.

Lord Ilkeston's committee of 1893 had shown that a death certificate did not even purport to certify the fact of death, that the stillborn were unrecognized by law, and that liveborn were not improbably dealt with as stillborn. Moreover, registrars of death were often ill qualified to decide which cases needed further investigation by a coroner. The more recent committee of Sir Mackenzie Chalmers had disclosed the inefficiency and out-of-date character of "crowner's quest law." There was no guarantee that a coroner had any knowledge of the law of evidence; the nearest medical man was not always the best to make a *post-mortem* examination, which might result in a charge of homicide. The coroner's officer was unknown to the law, and had in some cases been known to be corrupt. There was no power to order a *post-mortem* examination unless an inquest was to follow, whereas such examination might often render a subsequent inquest superfluous. Inquiry at present was often precise when not required, and when most required sometimes there was often none at all. There was no power to pension coroners when superannuated, and medical men attached to hospitals were precluded from receiving inquest fees. The speaker, having in vain invited the Home Office to introduce the overdue legislation, had introduced a bill during the current session to remove some of these more glaring defects and anomalies in the law. He regarded it rather as a *ballon d'essai*, and would welcome any criticism from an audience so well qualified as that to offer advice and suggestions. He considered that a coroner should have some knowledge of the law of evidence, and advocated the appointment of medical investigators into the causes of death in doubtful cases.

DISCUSSION.

The Right Hon. Dr. FARQUHARSON said that as an old parliamentary hand he recognized the difficulty of getting anything in the way of legislation through the House of Commons by a private member, especially if a medical man; but if Lord Ilkeston and Sir William Collins would keep pegging away in both Houses, they would in time remove the scandal of many people being smuggled into their graves without proper certification, and meetings such as that would aid in forming public opinion on the subject. He especially regretted the obstruction to the progress of cremation caused by the present loose system of death certification and registration.

Dr. J. BARKER SMITH (London) considered that the qualifications of a coroner were of less importance than the terms used in his court. For a jury instructed by the coroner to bring in a verdict that a suicide was out of his mind should not be allowed, even for conventional reasons. The term *mind* should not be used in medicine; it should be replaced by the term *brain*, the former being a general and legal term rather than a medical one. He was in favour of medical coroners.

Dr. JACKSON (Croydon) said that the confused state of coroners' law, and the different practice as to death certification in different parts of the country, made legislation necessary, and he heartily welcomed Sir William Collins's bill. But there seemed to be a slur on the profession when it was proposed that a barrister or solicitor with no medical knowledge whatever might be appointed coroner, but that a doctor should not be appointed without a legal diploma. Every inquest was to ascertain the medical cause of death, whereas legal questions only occasionally occurred, and could then be dealt with in the higher courts. He advocated pensions for part-time as well as for whole-time coroners. He also thought medical men should be paid for death certificates, and for notifying births to the medical officer of health.

Dr. DRURY (Halifax) regarded it as somewhat of a scandal that medical men should be suspect in Parliament, and hoped that Sir William Collins and other medical members would be able to remove the mistaken view in the Lobby that medical men were "out for fees." Reform in death certification was urgently needed, and the question of fees was one which should be clearly insisted on without any improper reflections being made on the medical profession. He objected to certificates of death, which were at present obtained from the profession for nothing, being sold to the public.

Dr. MCWALTER (Dublin) spoke in favour of the appointment of medical men as coroners.

Mr. COTES-PREEDY (London), speaking as a member of the medical profession and also a member of the Bar, raised the question as to the evidence given before coroners. At present the majority of testimony given was hearsay and not legal evidence in any court of justice. The power of coroners to commit for trial for murder or manslaughter should be abolished. If an inquest was a medical inquiry, then medical men were necessary, but if a legal inquiry, then knowledge of law was desirable and only legal evidence should be admitted.

Dr. BYGOTT (Barking) agreed with all Sir William Collins's proposals. He thought that death certificates should be decently carried or transmitted, as they were often used for begging purposes, or for the information of insurance agents and others. A coroner should be a specialist doing special judicial work, and be adequately trained and experienced. The qualification should not simply consist in his being a genial town councillor. The coroner should be regarded as a public health official, intimately related to the sanitary department. The deputy coroner should be appointed by the same authority as the coroner, and receive a proper salary. As an instance of the absurdity of the present system of death certification, Dr. Bygott mentioned a case which had not been attended by a medical man and no inquest had been held, but was returned by the Registrar as a death from membranous croup, which he had selected from a list of diseases more or less at random, after talking the matter over with the child's father.

Replying on the discussion, Sir WILLIAM COLLINS said that the ideal coroner would be a man qualified both in law and medicine. He had brought in a bill for pensioning coroners, and he also advocated paying fees for death certificates. He had a special clause in his bill excluding town councillors from being appointed coroners for five years after being on the town council.

DISCUSSION ON TOWN PLANNING IN RELATION TO PUBLIC HEALTH.

OPENING PAPER.

By JOHN ROBERTSON, M.D., B.Sc.Edin.,
Medical Officer of Health, Birmingham.

THE objects in view in making a town plan under the Housing, Town Planning, etc., Act, 1909, are stated to be "the securing proper sanitary conditions, amenity, and convenience" in connexion with the laying out and use of land.

I feel rather strongly that the popular conception of what can be accomplished by town planning is at present somewhat limited. It is, for instance, as necessary to apply the process to the existing parts of a town as it is to the yet undeveloped portions. But while this is so, it is obvious that in most instances our energy must be expended to begin with in insuring that those parts of the town which are undeveloped, and to which town planning can be most easily applied, shall receive our first attention. It is equally obvious that if the town as a whole is to be considered in regard to its sanitary conditions, amenity, and convenience, it is necessary to have what exists in so many German towns, namely, a scheme of projected improvements for the central area as well as for the growing edge.

The expense and difficulties with which we are face to face with reference to the planning of a central area are so great that it is obvious our chance of really satisfactory work is limited. If, however, the suburban areas are to be made convenient of access, the roads in the central areas

may have to be widened. It is obvious, too, that the amenity of the town will depend not only on its residential quarters, but on its central business area. It is therefore desirable, in my opinion, in attacking the subject of town planning in any large town to have a provisional scheme for dealing with the central areas. I have mentioned this necessity for dealing with the central area in order that I may omit any further reference to it without being thought to neglect so important an aspect of the problem.

Town planning, as the name implies, is a process restricted to towns and their suburbs. The need for the process has arisen from the fact that towns have grown within the past fifty years to such a size that the dwellers in the centre are now locked in by suburban areas, and cannot easily obtain the space necessary for healthy existence, while apparently the process is still going on, so that our existing suburbs may in time be similarly confined.

The process of town planning is apparently a very ancient one. To some extent it has been applied to Continental towns within the past century with more or less success, but so far as this country is concerned we have devoted our attention rather to the sanitation of the dwelling-house itself than to the development of the town from a public health point of view. The credit is certainly due to Mr. Horsfall of bringing forcibly to our notice what has been and is being done elsewhere by his book, *The Improvement of the Dwellings and Surroundings of the People*, published in 1904. I am quite aware that some excellent examples of town planning of recent date are to be seen in this country, particularly where large areas of land or even whole towns are under one ownership, so far as the land is concerned. The example which one sees in the New Town district of Edinburgh appears not to command the attention it deserves. But for the excellence of its town planning, Edinburgh would lose its chief attraction to its citizens. It would lose also much of its inspiration and healthiness but for the foresight and care displayed in the town plan. Eastbourne, Cheltenham, and many other towns show fine examples of town planning, so that we must not treat the subject as one that has never been considered before in our own country.

The example of the beautiful German towns is so frequently hurled at us, that we have been obliged to study their system of town planning and the conditions under which their people are housed. I would like to say here that it is extremely difficult to compare the conditions under which German towns have grown with those existing in England. The economic conditions and those pertaining to land tenure have altered the conditions of town development to such an extent that in the case of many of the German towns barrack buildings only are possible, and instead of gardens extra width has been added to tree-planted streets. In the towns land is so expensive that it is impossible to allot space for playing fields or parks where young people and children can roam over the grass and play healthful games. One has no hesitation in saying that the general conditions of life ought to be in England incomparably more healthy than in German towns. With our relatively cheap land making it possible to build cottages and to set aside playing fields, we have something which I think all will agree is better than the most elegantly built barrack buildings and artistically planted streets.

In studying the subject under discussion it is desirable to leave out of consideration exceptional towns. London, for example, cannot reasonably be classed with other towns in this country, so far as town planning is concerned, and similarly many other capitals have conditions which are peculiar to themselves.

1. The first proposition which I desire to make as one of the most important aspects of town planning is the necessity for distributing the population over greater areas than at present. This does not mean that I would advocate an attempt being made to return the people to the land, because I think that, except for relatively a small proportion, there is no real inducement. Man is by nature gregarious, and I think must always prefer the better wages and conditions of the town. While this is so, however, I believe that a most widespread and pernicious influence is at work in towns which it is at present very difficult to estimate statistically, but which is summed up in the expression "urbanization of the people."

It must be borne in mind that up to the present towns have been attracting so large a proportion of the best of the rural population that the effect of urbanization is not so apparent as it will become later. I believe that the condition of urbanization of the people is almost entirely due to want of contact with natural conditions. Our urban population is living under unnatural conditions, and these are telling on the population in the direction of lowered birth-rate, inferior physique of the dwellers in the central areas of the town, and probably also as far as those mental qualities are concerned which made this country great in past times. In nearly every large city in this country the children who live in the central areas cannot of their own free will get into really good and healthy playing fields, and the adults in these areas are deprived of that contact with healthy open-air conditions which are, I believe, absolutely essential for the mass of the people. These people live in an atmosphere of soot and sulphurous acid, their constant look-out is on soot-begrimed brick walls, and, while their homes may be dry and sanitary, they have not the means of obtaining that rest and recreation which is necessary for the strength of the nation.

There is at present some danger that the fascinating new science of eugenics may lead us astray. From contact with the dwellers in our towns I am sure that, while heredity undoubtedly plays an important part in race destiny, yet environment does play almost as important a part in causing the decay which is going on among the population residing in the centre of our large towns. I ought, perhaps, to point out that the migration from the country to the towns which has been going on will almost certainly lessen, and that therefore the effect of this invasion of healthy stock will cease and the resulting urbanization of the people will become more apparent.

Feeling strongly as I do on the necessity for distributing the people in towns so as to give them greater facilities for fresh air and proper recreation, I look to limiting the number of houses per acre as one of the most important results of town planning. I believe that experience alone will determine what is a sufficient number of houses per acre. It is probable that it may be perfectly safe to erect a very considerable number of houses on a particular acre of ground, provided that on adjoining acres the requisite recreation grounds and playing fields are provided. Obviously such a limit will only affect small house property, because the conditions which now obtain in our villa districts are, so far as area and means of recreation are concerned, sufficient in every respect. My own view is that it will probably be found desirable to limit the number of small cottages to an average of ten or twelve per acre instead of over forty, as at present permitted by most of the by-laws now in existence.

Any such limitation, however, must be accompanied by other conditions, otherwise it would not be a sound economic proposition. At the present time it is probable that very few builders would care to undertake a scheme with such a limitation. We have many areas where such a limitation applies, but in most instances the buildings have been erected by persons or societies having high philanthropic ideals. Such examples as we possess do not at present cater for that most important class of the community, the unskilled labourer. Until his financial position is better it will probably be found desirable to give him a very little space to his cottage in the form of a self-contained yard, but a much larger space in the form of common recreation grounds, playing fields, etc.

Twelve cottages and the necessary playing fields to an acre cannot be provided unless the land is cheap, and unless the roads are to be constructed on more economic lines than at present and the means of transit are improved. Fast and cheap means of transit by electric trams, railways, etc., is essential, and for the road traffic it is desirable that the main roads, which I will call traffic roads, should be wide and tree-planted.

But what I most want to draw attention to is the necessity of cheapening the ordinary residential road. So long as the cottages on either side of such a road are sufficiently separated and provision is made for traffic roads, there is no occasion for the wide carriage-way which one sees everywhere in those suburban districts that are occupied by artisan cottages. Probably an 18 ft.

carriage-way, with trees on alternate edges and a foot-walk on one or both sides, is all that is required, the extra space being thrown into front gardens or grass margins to the carriage-way. The effect of such narrowing of the carriage-way is greatly to cheapen the cost of estate development, at the same time reducing the cost of the upkeep of the roads, and, by preventing them becoming traffic roads, ensuring the creation of less dust and noise.

A great many modifications of this road question are possible; but I have thought that in the present discussion it was not desirable to detail them, even if I had the qualifications of a surveyor to do so.

It is possible also to arrange that certain roads, which when laid out are obviously not required for traffic purposes, may at a future date be widened so that they may become traffic roads.

With wide main roads the present limit of our electrical tramway systems is about 4 miles from the centre of the town—that is to say, the majority of artisans cannot conveniently travel further than 4 miles for business purposes. It might, however, be possible in the future to increase this range, but from what I shall deal with in the next heading I do not think that it is necessary to provide for the residence of artisans at any much greater distance than 4 miles from the centre.

As to the land difficulty, I would say that it is likely from existing legislation to put itself right, as indeed it has continued to do for a great many years in England, where the cost of land in the suburbs is probably ten times less than it is in the case of German towns.

It may be argued that such a limitation of houses as I think necessary is uncalled for, in view of the evidence which we have of the healthy condition of the inhabitants of many of the block buildings in London and other towns, but I feel that the statistics of these buildings are special and not applicable to the conditions of the whole town. Similarly, it may be alleged that the experience of the Scottish flatted towns and the numerous Continental flatted towns does not warrant our spreading the population. My answer is that I do not think that the true effect of urbanization is yet evident, except to those who make special inquiry. In the case of flatted towns the fact that no child under 5 years of age can get into the open air except when taken down a long flight of steps by its mother or some other person, and that when it arrives at the bottom of such steps its recreation ground is a paved street, and also that no older child can, except by a lucky coincidence, get into a playing field, appears to me to condemn the system of flats.

Somewhat similar conditions apply to the by-law houses of the present day for artisans, where no open spaces are provided and no playing fields are arranged for. The value of open air at all ages is not yet appreciated, except by those of us who have practical experience of the effect of such open air in the cure and the prevention of disease. Those of us who are actively engaged in the campaign against tuberculosis realize more than ever the value of the open air as distinguished from even the air inside well-ventilated rooms. It is in my opinion necessary to provide in the future that every town dweller shall have so good an opportunity of being in the open air that many of the diseases that we now associate with towns will be either eradicated or very largely diminished.

2. I have already indicated that in addition to the mere limitation of houses it will be necessary to obtain recreation grounds and playing fields. Perhaps one of the most obvious defects in the town planning which we all admire so much in the beautiful German towns is the absence of recreation grounds. I think it will probably be somewhat difficult at the present time to suggest a standard of accommodation, but in the future it may be possible to arrange an acreage per 10,000 of the population. Probably also certain further legislation is needed as to compulsory purchase of such areas.

3. Another aspect of town planning, which I think is probably lost sight of, is that relating to the facilities which should be given to manufacturers in towns. Hitherto manufacturers have had to look after themselves, and their works are scattered. If, however, such an idea as I have outlined is carried out with a view of preventing the establishment of noxious trades in residential areas, then it will be necessary to set aside areas for manufacturing processes, in which provision should be made for railways, canals, special water supplies, electric power, gas for manufacturing purposes, and many other such facilities.

It is obvious that such areas can only be economically worked provided that they are limited. For instance, it is impossible at present to provide a supply of Mond gas to all the manufacturers in a large town, whereas, were these works grouped together, such provision could be made. Such works areas would require to have good means of transit to the residential areas, and if there are several of such areas in a town with the facilities I have mentioned, there appears to be no hardship in limiting factories to them under certain definite conditions. At the present time a large amount of the dirtiness which arises in our towns is due to the hopelessness of ever keeping the dwelling-house clean, owing to the soot and sulphurous acid from the factories. I am familiar with some towns where this aspect of the question has received attention, and can vouch for its success.

There are, of course, obvious defects in the way, and perhaps the chief of these is the purchase of the land, so that not only may the manufacturer obtain facilities in the way of power and transit, but that he may also get the cheapest land possible.

4. As an important item in town planning I would urge the importance of amenity. I do not believe that a self-respecting race can be reared among the soot-begrimed bricks and mortar that we get in all our large towns. Ugliness and dirtiness are two characteristics of nearly all our manufacturing areas. If, therefore, by limiting the number of dwellings and grouping manufactories it is possible to exclude this dirtiness, it will at the same time be possible to arrange for the residential areas to be laid out artistically and beautifully.

5. I mention the condition of convenience as a secondary one because it is quite impossible to limit the dwelling-houses and thereby spread the population without considering at the same time the equally important question of convenience of transit.

DISCUSSION.

Dr. E. W. HOPE (M.O.H. Liverpool) said that no more conspicuous example of the mischief resulting from the rapid development of a great city without adequate powers of controlling such development could be instanced than Liverpool. The reports of the Royal Commission of sixty years ago had accurately recorded the mischief done up to that time, and old maps indicated clearly enough how, from want of knowledge, want of parliamentary powers, and want of foresight, this trouble was accentuated for many years afterwards. However, in the last generation Liverpool had availed itself of all general legislation and obtained special powers to meet her exceptional necessities, and the whole trend of modern legislation had been to facilitate the task of great centres of population in making their cities wholesome and pleasant. As Dr. Robertson had pointed out, the central parts of cities, more especially those occupied by the working classes, must receive attention, and had done so in Liverpool. At a cost of a million sterling many insanitary areas had been removed and replaced by appropriate dwellings. At the same time there had been provided open spaces and playgrounds within easy reach of the families of the poorest class of labourer who previously occupied the insanitary dwelling. One of the most conspicuous changes was the marked diminution in the rates of mortality amongst those people in their new surroundings. A system of town planning in the rapidly-growing suburbs such as would for ever prevent a return to the old evils was also in operation. It included the construction of a main road of 108 ft. in width, which would completely encircle the city, and from which minor roads of appropriate width should radiate in a suitable and pre-arranged manner. It had already been largely carried into effect. The general result, so far, had been highly gratifying, building operations having been carried out on good lines, and migration from the central parts to the suburbs encouraged. The cost of seven miles of this roadway had been relatively trifling, not exceeding, approximately, £7,000 per mile, whereas the expense of widening existing central parts of the city, which had also been effected, had exceeded this rate one-hundredfold. The work accomplished towards town planning had also given a stimulus to, and

perhaps brought within the range of practical possibility, the construction of a garden suburb estate, a project receiving valuable assistance from the Marquis of Salisbury. One object of the project was practically to limit the construction of buildings to four houses per acre. The work accomplished had been attended with an improvement in the public health, and had pointed the way in which future developments must take place. A Chair and School of Town Planning and Civic Design had been established at the University, whose staff was engaged upon lines which could not fail to help to mould public opinion, and strengthen the hands of those who already realized how essential it was that the great centres of population should grow upon good lines, and under such conditions as would add to the health and the happiness of the people.

Mr. T. C. HORSFALL, J.P. (Macclesfield), said that the Housing and Town Planning Act would probably not be much used until the regulations issued by the Local Government Board were made much simpler and less burdensome, and perhaps not till an amending Act was passed. Eventually, however, a workable measure would be obtained. Then efforts would be made by a considerable number of persons to induce local authorities to use the powers conferred on them in a way which would remove the evils experienced in some towns, especially parts of London. Already many houses, each used by only one family, had been replaced by taller houses containing flats. This change added to the convenience of life of many persons, and, by making the sites of the altered houses more valuable, brought much gain to some owners of land. Owners of land suitable for the erection of flats would seek to induce the local authorities to make town plans which would allow wide streets and tall houses to be erected. But, both by increasing the density of population and by raising the price of land, that kind of town planning injured the community as a whole. Another set of persons, whose efforts the speaker hoped all medical men would help, would try to get town-planning powers used for the purpose of supplying the conditions necessary for health for all the inhabitants of towns. There was much in our English system of housing which must not be sacrificed. We had many overcrowded dwellings, and many dwellings which were made unwholesome by structural defects; but notwithstanding these evils the average English dwelling was far superior to the average dwelling of any other country. The great evil was the bad environment of English workmen's dwellings. It was impossible for town children to be healthy unless they could get much play, and it was impossible for children or adults to be healthy in body or mind unless they knew enough of flowers and trees to be aware of the fact that the world was beautiful and interesting. Town-planning powers should therefore be so used as to place a playground and a small planted open space within easy reach of every dwelling. Traffic roads should from the first be wide enough for these purposes, but "residential" streets should not be unnecessarily wide. Paved road not needed for use was the most costly and useless form in which open space could be provided. Every unnecessary inch of macadam was an evil. The speaker then showed, by the help of diagrams enlarged from plates in Dr. Rudolf Eberstatt's *Handbuch des Wohnungswesens und der Wohnungfrage*, that many German municipal authorities, by an unwise use of their town-planning powers, had created towns certainly of much splendour and beauty, provided with streets of imposing width, but had simultaneously created a dwellings problem which would be far more difficult to solve than the problem which existed in this country. The diagrams showed that many of the tall five-storied buildings in German towns, which seen from the streets appeared to be palaces, really consisted of back-to-back dwellings, containing as a rule only one or two rooms and a kitchen. The majority were most imperfectly lighted, and ventilated from enclosed courts. The habit of the German authorities of insisting that nearly all streets should be of a width far exceeding what was necessary for traffic made it impossible to erect smaller houses, and had led to the following among other evils. Half the population of Berlin and of several other large towns lived in dwellings consisting of only one or two rooms and a kitchen. Rents were so high that even well-paid workmen who rented only one or two rooms were compelled to take in lodgers, who not infrequently slept in rooms also occupied by the grown-up daughters of the family. This intermixing of the sexes led to much immorality, 15 per cent. of the births in Berlin and 28 per cent. in Munich being illegitimate. Notwithstanding the better education of German workpeople, their greater cleanliness, and the better training in cookery of German women, the death-rate and infant mortality in German towns were considerably higher than in ours. At Ostheim, a suburb of Stuttgart, German town planning worked in such fashion as to make it impossible for one-family houses to be built even in a country place. The housing problem was much less difficult in this country than in any other European country; and in the Hampstead garden suburb, and elsewhere in England, the best way of supplying small dwellings with an adequate amount of open space had already been shown.

Mr. F. E. FREMANTLE (M.O.H. Herts) said the distinction between a garden city and a garden suburb was absolute, the latter arranging for the housing of a single section of the residential population, the former for the whole of a self-contained population—industries, banks, shops, and public buildings being included with residential houses for all sections of the population. Of this idea Letchworth, in Hertfordshire, was the first example, proposals for another garden city on a far larger scale being now under consideration. Letchworth was built on the central area of 1,318 acres, in an estate of 3,800 acres, the intention being to limit the urban population to 30,000, and to retain the agricultural belt, holding at most some 5,000 residents, and affording a close interchange of products and of employment between the urban industries and the land. In eight years the virgin population of 500 had exanded to 6,500, with 1,231 houses, 62 shops and banks, 37 factories and workshops, 9½ miles of new roads, and a corresponding development of gas and water mains and sewers. Buildings had been erected to a value of £365,000, with annual ground-rents of £4,159; the company's total expenditure—little of it on building—of £282,500 had produced a property valued at £379,500. The total present rates were 4s. 8d. in the £. The total death-rate for 1909 was 5.2 per 1,000, the infant mortality 31.7. Three of Dr. Robertson's points were here illustrated: (1) The central area of a town usually grew up in such a way as to make proper treatment of it impossible, but at Letchworth the central area was reserved for later development. In the earlier stages of the town's growth no one was prepared to build stately buildings, private or public, suitable for the central area of the eventual town. In Letchworth, therefore, the railway running across the centre of the area in a cutting was made the first fixed point, the industries growing up along the railway towards the north-east of the whole area, so that the prevailing south-west wind might direct the flow of smoke, slight as it was, away from the residential areas. Close to these industries were provided the first workmen's buildings. (2) A second point of Dr. Robertson's was illustrated by the second group of workmen's dwellings in the north of the area towards Norton, built by the Co-operative Tenants, Limited, a separate company. Then the need of providing for workmen who were not prepared to take care of a private garden was met by the provision of open squares for common use. (3) The limitation of houses to 12 per acre. Even this limit was only reached at Letchworth in one small area; for the most part there were only 8 or less houses per acre. So much for the typical garden city. As an instance of a garden suburb might be quoted the Valentine's Estate at Ilford, in the eastern suburban area of London. The Valentine's Estate at Ilford was purchased by the Town-Planning and Garden Cities Company, Limited, an offshoot of the original company, the Garden Cities Association. There was an old Georgian mansion, for which there appeared no further use, and an estate of some 44 acres within ten minutes of the station, which was only ten minutes by rail from Liverpool Street. The former owners of the property had made over of recent years to the district council a large area, now the public park, and also the gardens, which were equal in beauty to any he (the speaker) had seen. Between these two lay the estate now purchased.

The part chosen for present development was that along the main Connaught Road. The northern part of this area was being developed on fairly usual lines, the roads being arranged to connect conveniently with cross-roads outside the estate, while the houses were given more than the usual allowance of private garden, and trees were worked in appropriately to the scheme. The southern part of the area was arranged on more novel lines. Houses were so placed on both sides of the new Holcombe Road that all would be given views through and across the park. Some houses were provided with large and some with small gardens, the proportion of open space being preserved by the provision of public squares, which the district council had undertaken to maintain. This initial plan was being adapted during development to the wishes of purchasers, and within a few months the company expected to have sold this part of its property under contracts providing for the building of houses on plans subject to the company's approval. The net profits, amounting to some thousands of pounds, subject to the duty on unearned increment, would be devoted to local objects of public interest. This scheme showed, therefore, the great financial value of such development, and the importance of securing that it should be carried out in the public and not in private interest. The speaker appealed to all medical officers of health to take up the question with vigour in their respective districts, with a view to the *prevention of the growth of slums* of any kind, and with a view also to the development of houses as satisfactory to the health of the people in their inter-relation as under the building by-laws they must now be in their individual structure.

DISCUSSION ON ADMINISTRATIVE CONTROL OF OPHTHALMIA NEONATORUM.

OPENING PAPER.

By GEORGE REID, M.D., D.P.H.,
County Medical Officer of Health, Staffordshire.

No argument is needed to emphasize the importance of providing machinery for dealing with ophthalmia neonatorum, which, it has been estimated, is the cause of at least one-third of the cases of permanent blindness in the country. Indeed, having regard to the serious nature of the malady, one may well ask why in these days, when so much time and energy are being devoted to public health questions, possibly of lesser moment and greater complexity, this question, the solution of which is relatively so simple, should hitherto have been overlooked. Apart from the humanitarian aspect of the question, the financial gain in preventing blindness from this cause would be very material, in view of the fact that the cost of educating a blind child amounts to about £500, as compared with £30, the cost of educating the ordinary child. But this by no means represents the total gain from an economic point of view, for a blind person is of far less value to the State than one who possesses his sight.

For some eight or nine months a scheme has been in operation in certain districts in North Staffordshire, including the six Pottery towns now constituting the county borough of Stoke-on-Trent, and even this short experience of its working has shown that the problem is capable of easy solution.

The credit of starting the movement, which, as it turned out, required but little advocacy to commend itself to the authorities, is due to Mr. Greatbatch, the chairman of a large blind and deaf school in North Staffordshire, and the idea originated in a conversation he had with Mr. Folker, the ophthalmic surgeon of the school, who, I am glad to find, is taking part in to-day's discussion. The conversation had reference to the need which had arisen for extending the school buildings, and Mr. Folker pointed out that no extension would be necessary if steps could be taken to insure that cases of ophthalmia neonatorum received early and intelligent treatment. Mr. Greatbatch accordingly approached the various public health authorities in the neighbourhood, and, with the co-operation of the County Council, an important conference of medical officers of health and representatives of the various authorities was held, with the result that a scheme was inaugurated which is now in successful operation.

The procedure is very simple. The law as it stands enables everything to be done which is needful.

In the first place, the public health staff must receive early notification of the cases, and this is provided for by including the affection among diseases which are notifiable under the Compulsory Notification of Infectious Diseases Act. In addition to this, it is desirable, although not essential, that the Notification of Births Act, 1907, should be adopted, as the health visitor appointed under that Act is then available for following up the cases after the completion of the treatment in case of a relapse, and for the discovery of cases which may not have been notified—emergency cases, for example, not attended either by a doctor or midwife.

In the second place, provision must be made for the medical treatment and skilled nursing of the cases under Section 133 of the Public Health Act, 1875.

As Mr. Folker will no doubt tell us, simple though the treatment is in most cases, it is essential that no delay shall take place, and to insure success the services of expert nurses must be placed at the disposal of the medical man, should he desire such help.

Let me sketch, shortly, what the procedure is. On receipt of a notification, say, from a midwife, the medical officer of health causes inquiry to be made into the circumstances, and takes steps to insure that medical help is at once obtained, informing the medical man at the same time that, if required, the authority will provide nurses for the case. If, on the other hand, the case is notified by a medical man, he is at once asked whether he desires that nurses shall be supplied.

Of course, the majority of such cases occur among the poorer classes, and, as a rule, they are not in a position to pay for skilled nursing even for the few days that such is usually required. This being the case, it is essential that the authority shall supply and pay for nursing help in cases which require it. Among the very poor, however, the home conditions may be such that removal of the cases to the workhouse infirmary may be necessary, in which case the Poor Law authority must defray the cost of treatment.

So far, I believe, with one exception, no difficulty has been experienced in inducing parents to avail themselves of the advantages of the scheme, but no doubt cases will occasionally be met with in which the action of the authority may be resented, and to meet such cases it may be necessary to institute proceedings under the Prevention of Cruelty to Children Act. One such prosecution, however, would probably have the effect of breaking down all subsequent opposition to the scheme.

I believe all the authorities in whose districts the scheme is in operation at present have assumed the responsibility of providing and paying for the nursing assistance needful, but, so far, in one district only has provision been made for defraying the cost of medical treatment. No doubt experience will ultimately show that such provision is essential to complete success; medical men should not be asked by a public authority to undertake the treatment of this or any other form of illness unless the request carries with it an obligation to pay for such services. If it should happen that the family is in a position to refund all or a portion of the cost, then the authority has the power to recover, but the medical man should be relieved of all responsibility in that respect. Sooner or later the basis of payment for such services will have to be fixed, and whatever sum may be agreed upon, it is desirable that it should be uniform throughout the country and inclusive. In the one district where such provision has been made the fee paid is £1 1s. per case, and probably that may prove to be a reasonable fee. No doubt, in a certain number of cases, that sum would be but poor remuneration for the services required; on the other hand, there are many mild cases which require little treatment, and these must be regarded as a set-off against the serious cases which call for more prolonged treatment.

We have not yet had long enough experience of the working of the machinery in the districts in Staffordshire where schemes are in operation to be able to show very conclusive results, but, so far, we have every reason to be satisfied. The medical officers of health of the various districts have been good enough to supply me with certain information, from which I am able to give the following particulars.

During the period, about eight months, while the scheme has been in operation in eight districts, having a total population of 281,797, the cases notified by midwives and medical men, or both, numbered 87, all of which, sooner or later, through the action of the authorities, were medically attended, the diagnosis being confirmed in all the midwives' cases with one exception. There were many mild cases among those notified, and for that reason nurses were provided by the authorities for 24 cases only (28 per cent.), while in a few other cases the families were in a position to provide the nursing help required.

The mean cost per case where nurses were supplied amounted to £3 1s. 9d.

Deducting the case in which the diagnosis was not confirmed, 79 cases (91.8 per cent.) recovered completely, 4 (4.6 per cent.) recovered partially, 1 (1.2 per cent.) lost the sight of one eye, and 2 (2.3 per cent.) became totally blind.

I find, however, upon inquiry that when the scheme was first brought into operation in many cases notification was greatly delayed, and the want of success in at least three of the four cases which only partially recovered was attributed to this, as well as in one of the cases in which blindness resulted. There is no doubt that a good many of the cases would have had a poor chance of recovery had it not been for the attention they received, and, on the whole, the general opinion among the medical officers of health is, that, having regard to the drawbacks incidental to the novelty of the scheme, the success achieved has been most gratifying.

On the basis of the figures I have given, the notifications per annum in Staffordshire as a whole would amount to 0.45 per 1,000 of the population, and the cost of treatment, including medical attendance in each case at £1 1s. and nursing expenses in the ratio which was found necessary, would amount to a total of £1,204 for a population of 1,377,017, or 17s. 5d. per 1,000, by no means a large sum, having regard to the result achieved, and representing a cost per case of only half the cost of isolating a case of scarlet fever in hospital. It must also be remembered that the number of cases will undoubtedly diminish year by year as the "bona-fide" type of midwife gradually becomes extinct, and is replaced by properly trained women. This weeding-out process, however, will take time, and meanwhile the damage being done is serious. I am confident that the experience we have already had in Staffordshire will, before another year has passed, lead all the authorities in the county to follow the good example of those in the North, and I hope that the lead given in that county will soon be followed by all the authorities in the kingdom, with the result that blindness from ophthalmia neonatorum will practically become a thing of the past.

DISCUSSION.

Mr. BISHOP HARMAN (Oculist, L.C.C. Blind Schools) said that as the Local Government Board had accepted the principle of notification of this disease, it could not be doubted that the agitation carried on for so many years by ophthalmic surgeons and obstetricians was at last to be rewarded. It now remained for medical officers of health to present the case of ophthalmia neonatorum to their own authorities in such fashion as would cause them to desire notification to come into force in their districts. Notification, he continued, will by itself act as a great stimulus to care in the management of labour and of the newborn infant, but an organized plan for promptly dealing with cases that are notified must be prepared. The plan I would suggest is as follows: (1) On the occurrence of a case of purulent conjunctivitis in a newborn infant the doctor in charge should be required, not only to notify it, but also to send to the public bacteriological laboratory for microscopical examination two film preparations of the pus on glass slips. The bacteriological diagnosis of these cases is of the first importance. Risk to the sight of the infant is only to be feared when the micrococcus of Neisser is the infective agent. The virulent streptococcal conjunctivitis is excepted, as it is scarcely ever seen in the newborn. (2) The medical officer of health should be empowered to investigate the case notified, to the end that it may be so treated as to present no risk to the community. As I have shown in my book, *Preventable Blindness*, a whole family may be infected from a newborn infant. (3) The medical officer of health should have at his call some surgeon capable of giving expert advice in the care of these cases, just as is done in epidemics of exanthemata in London. The school medical officer might be made use of for this purpose, and be required to make himself thoroughly conversant with the disease and its treatment. (4) Nursing is of the highest importance, and in view of the particular care and experience required, these cases should be treated at some institution rather than at the homes of the infants. For the most part they occur amongst the very poor, in whose homes the difficulties of housing nurses, of obtaining necessary space for the infant, the lack of ordinary domestic appliances, and particularly the liability to reinfection during the lying-in period of the mother, all make removal both of mother and child to fitting quarters most desirable. It seems to be of the greatest importance that the number of these cases and the final result of their treatment should be collected by the medical officer of health, transmitted to the central authority, and published annually. This will give us a better idea of the incidence of the disease and of the effectiveness of our measures than we can obtain by any private inquiries. It would act as a great stimulus on the laymen of the councils of local authorities if the medical officer of health prepared schedules showing the relative costs of these preventive measures and of the costs of educating blind children. They would present a more effective appeal than any cry for pity.

Mr. HERBERT H. FOLKER (Stoke-on-Trent) said that in ophthalmia neonatorum it was absolutely essential that the Notification of Infectious Diseases Act should be adopted, as success depended on early treatment. There must be a complete machinery at work, and all should work in unison. (1) On receipt of notification a lady inspector should be sent to the house (when the case was in charge of a midwife) to make the necessary arrangements for medical help and nursing. (2) Nurses, one for day and one for night, should be provided at the expense of the municipal authority. (3) Where the homes were of such a poor character as to prejudice the chance of recovery of the infant, cottage homes containing about four beds should be provided, to which the mother and child could be removed. This plan had been adopted by the Liverpool authorities, and had worked with wonderful success. As regarded expense, in the Federation Borough of Stoke-on-Trent, 78 cases were reported during a period of nine months, with 2 cases resulting in blindness. Medical attendance and nursing were supplied when required, and the average cost to the community came to £3 1s. 9d. a case; whereas if these cases had been left to the midwife, the probability was that the percentage of blind would have been much higher. When it was remembered that the education of a blind child cost, roughly, about £490, it would be seen at once that the small initial expense was justified. When mother and child were removed to a home, the medical man in attendance should be left in charge of his patient and not allowed to place the patient under the care of the health authority.

Dr. COOPER-PATTIN (M.O.H. Norwich) said that Norwich had adopted compulsory notification and it was working satisfactorily, and the afflicted children, so far two in number, had also been treated satisfactorily. The medical officer of health would be enabled to effect more quickly the removal of the mother and child from unsuitable surroundings to a hospital where all forms of medical aid were co-ordinated in and made part of a public health department of a community.

Dr. J. C. MCWALTER (Dublin) remarked that ophthalmia neonatorum ought never to occur. If it did there was a prima facie case made out that the nurse or doctor in charge of the case was guilty of negligence. The duty of preventing such cases ought to be insisted on, and if they did occur the general practitioner ought not to be relieved of his duty of treating them. There was a danger that the public would soon cease to attend to the warnings of

doctors if the only remedy suggested was to appoint more specialists at more fees. Hitherto the public had listened to doctors because, although they lived by disease, yet they strove by every means in their power to wipe out disease. Again, one distinguished oculist told them that they should take a smear preparation of a suspected case and send it to a bacteriologist, whilst the equally distinguished specialist who followed stated that unless a case were treated within twelve hours no good could be done, showing that if one waited for the bacteriological report it would be too late to deal effectually with the disease. He considered that the local general practitioner ought to treat the case; if it was virulent it should be sent to an eye hospital.

Dr. E. H. T. NASH (M.O.H. Wimbledon) criticized the figures given by Mr. Folker with regard to the amount saved to the community. He called attention to the statement that 76 cases—that is, the total number notified—were given as cured, thereby saving £490 per case to the community. That statement meant that every case notified would have gone blind, which was very far from the truth. Medical officers of health should be very careful that the balance sheets they laid before their committees were as nearly as possible accurate, and up to the present the figures furnished did not give sufficient data to work on. The question of treatment in the poorest homes by nurses was very difficult, as the homes were in many cases too filthy to ask a nurse to stay in, and often there was only one room. In these cases the method adopted in Liverpool gave the most satisfactory results—that is, the mother and child were removed at once to the hospital, with the promise that the practitioner in attendance on the case should continue the treatment in hospital. This might be done under Section 133 of the Public Health Act, by contribution to the local hospital, carrying with it the right of admission of these cases.

Dr. REID, in reply, said it was not suggested that medical experts should be engaged to attend the cases. The actual practice was for the ordinary medical attendant of the family to be called in, and the authority took steps to ensure that this should be done. It was only right, therefore, that when a medical man's services were sought for by a public authority they should be paid for by that authority, although up to the present this practice was only followed in one of the districts where the compulsory notification of ophthalmia neonatorum was in force. He entirely dissented from the suggestion that the responsibility should not be removed from the midwives. Indeed, responsibility was not removed from them except as regards treatment. The midwife was held responsible for notification, and having regard to the class of women now in practice, and who would be in practice for years to come, to place the responsibility of treatment on their shoulders would be a most unwise and dangerous proceeding; in fact, interference on their part would be worse than useless. As regarded Dr. Nash's suggestion that cases should be dealt with in hospital, this was unnecessary, except in exceptional cases, and in most districts the compulsory removal of mother and child would be resented. Moreover, the objection to such removal would probably lead to delay in treatment, which might have serious consequences. All that was essential was that the child should be placed under medical care, and that the medical man (in such cases as required it) should be provided with nursing assistance, both night and day. All the authorities in Staffordshire, where compulsory notification was in operation, had accepted the responsibility of supplying nurses, and it had been found that their services had been required in 24 per cent. of the cases. He agreed with Dr. Nash that the cases which did not become blind must not for that reason be regarded as successes from the point of view of treatment, as, of course, many would have recovered in any case. At the same time, for what the figures were worth, having regard to the short period in which the scheme had been in operation, he would point out that the failures—that is to say, the cases which ended in blindness in the case of the Staffordshire towns—amounted to 2.3 per cent., compared with 10 per cent., the corresponding figure for Liverpool, where the practice of hospital treatment was now in operation.

DISCUSSION ON THE ETIOLOGY AND PREVENTION OF SUMMER DIARRHOEA.

OPENING PAPER.

By JAMES NIVEN, M.A., M.B., B.C.Cantab.,
Medical Officer of Health, Manchester.

IN opening the discussion Dr. Niven gave reasons for assuming that the subject could best be discussed from the standpoint of the experience of one locality during a number of years, thus eliminating the confusion due to local differences. He therefore based his observations on an investigation of the disease at Manchester during the years 1904, 1905, and 1906.

He considered that the disease was an infectious one, the latent period varying from two or three to seven or eight days. That was shown by the distribution of deaths and by the annual wave of diarrhoea, which, like the annual waves of other zymotic diseases, indicated a rapid transmission in some manner of infection from person to person; but diarrhoea differed from other infectious diseases in that it was not nearly so easy of personal conveyance. It was remarkable that epidemic diarrhoea remained at a uniform low level of fatality from January until the fly season set in; the fatality then began to ascend rapidly, and after a brief period of consummation descended with nearly equal rapidity, the whole period extending over about three months.

After discussing various theories as to the causation of epidemic diarrhoea, the author expressed an opinion that the main factor in its dissemination was the operation of flies. In order to establish this hypothesis certain conditions must be fulfilled:

1. A fairly close correspondence must exist between the number of house-flies in circulation and the number of deaths from fatal diarrhoea.
2. Flies must be present in considerable numbers before the rise of the diarrhoea curve.
3. Any deviation from the correspondence must be explicable in terms of the natural history of flies and diarrhoea.
4. Flies must have been generally present in numbers sufficient to cause infection of food or of infants' mouths.
5. There must be no such correspondence with any other possible cause of diarrhoea capable of explaining its course.
6. House-flies must be shown to be capable of acting as transmitting agents.

The capacity of the house-fly to act as a carrying agent had been conclusively demonstrated by Dr. Sellers in Professor Delépine's laboratory. The infecting organism was probably a *coli* bacillus, and it was found that flies must be present in large numbers to convey sufficient infective matter to render an infant's food pathogenic.

In order to see the degree of correspondence between the number of flies in circulation and the number of deaths from diarrhoea, the following procedure was adopted. A number of reliable observers were sought out, mostly in cottage houses. They were furnished with bell traps containing sweet beer, and were instructed to empty out the contents of these every twenty-four hours at a fixed time, count the flies, enter the number in a book, and recharge the traps with beer. At the end of the season the daily records were entered in a register and added up in weeks for each station, and the total number for all the stations recorded. When the results obtained were displayed in curves a remarkably close correspondence was found between the curve of flies and that of diarrhoea deaths. It was noticed that there was a considerable number of flies per station before the fatal cases of diarrhoea began to ascend.

The argument that flies were the carriers of infection was strengthened by the exclusion of other explanations of the dissemination of diarrhoea. It did not, however, follow that because there was a large number of flies in the houses of any district there would be an exceptional incidence of fatal diarrhoea. That would depend on the amount of infection previously existing in the district and on the type of disease. But if there was a severe incidence of epidemic diarrhoea on any area, one would certainly anticipate that the houses affected had been visited, as a whole, by very large numbers of flies, and that there would be in that area exceptional opportunities for the production of flies. That was found to be the case in two small areas severely visited by diarrhoea which the author had investigated.

The author then pointed out that even if they could ensure that infants were fed on sterilized food and still contracted fatal diarrhoea, it would not disprove the fly hypothesis; because flies might carry infection direct to the infant's mouth, and might also infect the food of older persons outside the house, who might contract a slight attack, and hand on the disease to the infant. Moreover, in a house thickly infested with flies, a vast amount of infective material was deposited on walls and tables, as was shown by Professor Delépine's and Dr. Sellers's investigations. If, therefore, flies were to be excluded, very special instructions and precautions would have to be insisted on. It was certain that in better-class houses, which might be assumed to be comparatively free from flies, infants did not suffer from diarrhoea, whether their food had or had not been sterilized.

There were other indications that flies played an active part in spreading diarrhoea. Privy-midden districts tended to show an exceptional fatality in warm years, when conditions favoured the development of flies; heavy rainfall, on the other hand, playing an important part in checking the development of the pupae.

Turning to the subject of enteric fever, it was found that the autumnal curve of enteric showed a rise coincident with the prevalence of flies, but slighter and not so closely corresponding with the number of flies as in the diarrhoea curve. This rise was divided into primary and secondary portions, the secondary portion being intermingled with the Manchester rise from the consumption of infected mussels, commencing in the thirty-eighth and thirty-ninth weeks. On studying this rise for a long series of years, it was found at the beginning of the period to commence slightly before the rise in diarrhoeal fatality, and to extend beyond it, but not before flies had commenced to be numerous. In recent years the primary part of the autumnal rise corresponded to the rise in diarrhoea deaths, lagging a little behind it, owing to the comparatively long latent period of enteric.

It was a notable fact that confusion between enteric and diarrhoea was specially liable to occur at the height of the diarrhoea season. Cases thus overlooked had also been shown to have special potency in direct infection.

Subtracting cases due to shellfish or to the more obvious forms of direct infection, residual numbers were obtained indicating a slight rise in the fly season, but showing also in other parts of the year rises unaccounted for. These were most conspicuous in the latter weeks of the year, and might be due to spread of the disease by rats, mice, and various domestic insects, such as cockroaches, which infested middens; or they might be due to some other cause not hitherto brought to light.

In conclusion, Dr. Niven said that any further light on the spread of enteric fever by those means could only be obtained by long and painstaking observation. Evidence obtained in South Africa, India, and America pointed to the conclusion that flies had been the chief agency in causing severe outbursts of the disease. That strengthened the interpretation given to the early autumnal rise of enteric, and to the rise and fall of summer diarrhoea. It was scarcely necessary to point out that if these views, not by any means original, were sound, domestic refuse attained much increased importance, and the measures of prevention called for were sufficiently plain and urgent.

DISCUSSION.

Dr. J. H. CLEMENTS (M.O.H. Beckenham) detailed the results of an investigation into 44 cases of summer diarrhoea in a northern town, in the year 1909, in which voluntary notification was for the time being in operation. These 44 cases were notified from forty-two houses, there being two sets of twins, and 40 of them occurring between August 9th and September 9th. In several houses adults or older children suffered from the disease, but were not included in the count, which only related to children under 2 years. The secondary cases were probably infected from a common source and not directly from the first case, for the same care was taken with the stools and linen as in the case of typhoid fever. Of the babies 27 were under 12 months and 17 between 12 and 24 months. Of the former, 17 were under the age of 9 months, and in none of these was the baby fed entirely on the breast; 10 of them were fed wholly by bottle or artificial foods, and 7 were partly breast-fed and partly bottle-fed. The mother went out to work in the mill in 15 cases. In the great majority of the infected houses the yards were unpaved and the conveniences were privy middens. In the few cases in which the house was provided with a watercloset there were privy middens in the adjoining yards or close by. Speaking generally, the cases occurred in parts of the town where the housing was of the poorest type, where the sanitary arrangements were least satisfactory, and where there was evidence of neglect and want of cleanliness within and without the house. A rough estimate was made of the number of flies in the infected houses, and flies were collected from 15 cases for bacteriological examination. In every house where diarrhoea occurred there were numbers of flies, and some of the houses were infested with them. When the scavengers commenced to spray the privy middens with izal several complaints were made to the effect that since the middens were sprayed all the flies swarmed into the houses and became a nuisance. The samples of flies, twelve to eighteen in each sample, were collected in sterile test tubes, and classified according to species before being sent to the laboratory. They practically all belonged to the species *Musca domestica*. In three or four batches of flies the lesser house-fly, *Homolomyia canicularis*, was observed, and on one occasion a large blue-bottle fly was obtained. The flies when kept for a few hours deposited large numbers of eggs on the side of the test tube, and from several batches of flies the eggs were taken and deposited on moist bread and kept in the incubator, and the well-known larva and pupa stages observed. Some fly larvae were obtained from collections of manure in various parts of the town, and their development compared with those grown in the incubator. The larvae hatched in the manure heaps looked almost black compared with the creamy white appearance of those grown on bread, owing to their alimentary canal being filled with the contents of the manure pit. The larval stage was a very active one, and the larva gorged itself with whatever material it was growing in. There could be little doubt that the fly reared in a manure heap had its alimentary canal well stocked with whatever organisms the manure might contain, and these organisms probably continued to multiply during the adult life of the fly, and got deposited wherever it chanced to alight. This fact alone should suffice to cause the fly to be regarded with suspicion, even if his legs were not so admirably constructed for picking up and carrying whatever material his unsavoury habits induced him to rest upon. During the period of fly prevalence some attempts were made to kill the flies in houses where they were the greatest nuisance. Sprays of various kinds were used, and formalin both in the form of vapour and spray was tried; the vapour did not kill the flies, and the spray was so unpleasant and irritating to the person using it that it had to be given up. A spray of izal proved to be more successful; it did not immediately kill the flies, but when sprayed over them they became stupefied and fell to the ground, where they could be swept or gathered up with a cloth and thrown into the fire. By the use of izal spray all the flies in several houses were killed, but on revisiting the houses a few days later the fly nuisance was as bad as before spraying, showing the futility of these methods of dealing with flies unless some contrivance were at the same time adopted to keep them out of the houses. In view of the fact that investigations at the Lister Institute by Morgan and others had shown that one particular bacillus—Morgan's bacillus No. 1—predominated over all the other members of the non-lactose group isolated from diarrhoeal faeces, and that this bacillus was only rarely present in the stools of healthy children, an attempt was made by the speaker to ascertain whether Morgan's bacillus or other organism predominated in his cases. Samples of diarrhoea stools were obtained from 15 of them, and at the same time a number of flies were taken from the living room of the house and examined bacteriologically. The most striking feature in the microscopic examination of the stools was the large number of bacteria present; a thin smear preparation of the stools when stained showed as many organisms as were visible in a twenty-four to forty-eight hours broth culture similarly stained. The bacteriological examination of the flies and stools was carried out

for the speaker by Dr. Thomas Orr, of the County Laboratory, Wakefield, who had had considerable experience in isolating organisms from the intestinal tract. Eventually he reported as follows:

From August 13th till October 14th 15 specimens of faeces from cases of epidemic diarrhoea were received, in order to determine if there could be found any predominating organism to which an etiological influence could be ascribed. In the bacteriological examination my attention was devoted to non-lactose fermenters (MacConkey), a group of organisms supposed to give rise to diarrhoeal conditions; and special search was made for Morgan's bacillus, an organism which has been frequently found present in cases of epidemic diarrhoea in London. The results were disappointing, inasmuch as few non-lactose fermenters were isolated. In only 3 specimens were they found, and the organisms on subcultivation proved to be in one case *B. proteus vulgaris*, and in the other two cases bacilli belonging to the paratyphoid group. Morgan's bacillus was not found. The 15 batches of flies taken from the homes in which the above cases of diarrhoea occurred were examined for the same organisms, but with equally disappointing results. All showed the presence of various species of lactose fermenters (*B. coli*, etc.), but in only 2 cases were non-lactose fermenters found. One organism corresponded in all respects, morphologically and biologically, with Morgan's bacillus, and the other belonged to the paratyphoid group. The results, therefore, have proved unsatisfactory, as no non-lactose fermenters were found to be commonly present. The paucity in these organisms may have been due to the fact that often the specimens had been collected twelve to twenty-four hours before being received.

From this report it appeared that Morgan's bacillus was not present in any of the diarrhoea stools examined, and was present in only one batch of flies. The general conclusions reached were as follows: (1) Diarrhoea is a disease depending on filth conditions. (2) The poison enters the body usually in contaminated food. (3) The common house-fly is an active agent in distributing the poison. (4) The capacity of patients to infect others is not very great. (5) The disease does not run a definite course like some of the other infectious diseases, the patient rapidly improving once the source of the poison is cut off.

Dr. BROWN (Bacup) said that the rôle of the house-fly as a disease carrier was strongly urged by many medical men, especially by those who had lived in tropical and other countries where enteric fever was practically endemic. He was not convinced that the house-fly was a disease carrier, but he considered that as a filth carrier and troublesome pest it ought to be destroyed. The house-fly might serve some useful purpose in nature which they did not yet fully understand and appreciate. They knew the cockroach to be a useful scavenger. Dr. Niven had referred to the difficulty of destroying the house-fly and the necessity for removing horse manure as a hotbed for breeding this pest. It was difficult to get horse manure removed sufficiently often; and in his own experience he found that the house-fly was not a nuisance when six or more hens per horse were kept in or near the midden. The maggots or larvae were practically eaten in this condition, and there was now no "fly-pest" to annoy the residents.

Dr. HERBERT JONES (Hereford) referred to the connexion between diarrhoea and the large accumulations of privy middens in country districts. He urged that the nuisance sections of the Public Health Act should be more stringently enforced to compel householders to cover over excremental matter with earth.

Dr. J. C. MCWALTER (Dublin) considered that the idea of the house-fly being a cause of disease was a mere superstition, but much might be done by removing accumulations of filth, which bred the flies. There was a curious tendency in the human mind to hypothesize the cause of disease. Malaria, small-pox, and fever were by our ancestors looked on as malignant spirits infesting the air. We were still obsessed by the same delusion, and sought to prove that some definite entity which could be seen and touched was the cause of disease. Thus at one time we sought for a definite organism, at another moment we tried to obliterate other entities which were suspected of causing the organism. Obviously the suspected organism might only be a concomitant of the disease, which might be caused by some group of conditions rather than by a given organism. In Continental cities flies were very prevalent, but epidemic diarrhoea was not so prevalent as with us. The earth temperature at 4 ft. from the surface seemed to bear a more definite relation to epidemic diarrhoea than any other collocation of conditions.

SECTION OF MEDICAL SOCIOLOGY.

J. A. MACDONALD, M.D., President.

DISCUSSION ON STATE SICKNESS INSURANCE (PROVISION OF MEDICAL ATTENDANCE) AS AFFECTING THE PUBLIC HEALTH AND THE MEDICAL PROFESSION.

OPENING PAPER.

I.—Mr. SMITH WHITAKER,

Medical Secretary, British Medical Association.

AFTER alluding to a synopsis which had been issued, the speaker said that the first point was whether the existing system by which medical attendance was provided for certain sections of the community was so inadequate as to necessitate an alteration. These arrangements were summarized in the synopsis as private practice, contract practice, charitable services, and public services. It was unnecessary to enter into a prolonged examination of these in order to satisfy all that they were inadequate, and that some other provision was necessary. One of the most important points that had to be considered, and one to which those who spoke for the public were increasingly paying attention, was the necessity that medical treatment should be prompt. In no department more than in that of medical treatment was it true that a stitch in time saved nine. Not only was there a public demand, but the medical profession had recently shown its recognition of the necessity for better provision to ensure that medical attendance should be promptly available when required.

Upon examining the various forms of provision for medical attendance, the elements that were found in practice to lead to delay in obtaining it were, first, the fear of the honest patient that he might not be able to pay the cost of treatment, and, secondly, the ordinary inertia of human nature.

The first of these difficulties might be met by some form of insurance. As regards the second, the want of education, particularly of scientific as distinct from literary education, led to want of recognition of the importance of what appeared to be trifling disorders, and this would be removed by the development of knowledge.

To what extent should the State intervene to make provision for these necessities? In considering the kinds or degrees of intervention that had been suggested it would be noted that, in the first place, there must be some kind of economic provision to secure that the funds necessary to pay for treatment should be available when required, and there was the question what part the State should play in organizing or promoting such provision. Secondly, there was the question to what extent the State should intervene in employing the doctor, or in determining the conditions of his employment. These two kinds of provision must be kept entirely distinct in our minds. There was the question of national insurance, the question whether the State should undertake to make arrangements whereby the funds for the remuneration of the doctor should be available, and, as quite an independent matter, the question whether the State should itself directly employ the doctor or should lay down the conditions under which he should be employed.

As to the first of these points there appeared to be general agreement. On the side of the public, one had heard of no protest against the proposals of the present Government to organize sickness and invalidity insurance; and, as regards the medical profession—though, of course, it was not suggested that there had been any representative pronouncement—there could be little doubt that the general feeling was in favour of some system of insurance whereby proper treatment should be made readily available.

The question, then, would be whether the State should make the arrangements for the actual rendering of medical attendance or should leave that to private arrangements. It had been inferred by some, from certain statements of the Chancellor of the Exchequer, that the Government would not in its Sickness Insurance Scheme make any explicit reference to provision of medical attendance. But if there were insurance against the cost of necessary relief during sickness or invalidity, it was clear that whether the cost of medical treatment was specifically and separately provided for or not, the provision must be sufficient to cover that cost, or it was not of any use to the patient.

Assuming it to be generally agreed that the State shall intervene to the extent of securing that funds out of which the doctor may be paid shall be available, the next question was as to the system of employment of doctors which should be adopted, and the extent to which the State should actively concern itself in this matter. On this there was the widest variety of opinions. At one extreme were the proposals of the Minority of the Royal Commission on the Poor Law, who recommended the employment by the State (using that expression to cover not only central but local public authorities) of a number of whole-time medical officers whose duties should include the treatment of every kind of disease. Some critics of the Minority Poor Law Report alleged that the authors of that report contemplated making the services of the whole-time medical officers available for every member of the community, but such a proposal was not definitely put forward, and the speaker understood that the Minority Commissioners did, in fact, contemplate that the benefits of any State service should be restricted by a wage limit or other similar provision. The main point, however, was the conception of organizing a State service of whole-time salaried medical officers for purposes of treatment.

At the other extreme were those who believed that treatment would always best be given by an independent medical service, and who believed also that it was possible so to organize a public service for medical attendance that the patient should have that desired freedom of choice of his doctor which he enjoys in private practice. Those who took the view that the treatment of disease is not a purely material process would lay stress on this element of choice. Members of the medical profession were sometimes accused of being too materialistic, but the speaker believed that every medical man or woman experienced in practice was convinced that psychical elements had an important influence on the success of treatment of material disorders.

Considering the present matter from the psychological standpoint, two of the most important factors were, as regards the mind of the patient, that he should have confidence in his medical attendant, and, as regards the mind of the doctor, that he should be inspired in all his efforts by the knowledge that he enjoyed the confidence of his patient. These conditions were more likely to be present if the doctor was not forced upon the patient from outside, but occupied his position of trust through the exercise of the patient's volition. That was a most important element to take into account in considering any proposed great extension of the employment of whole-time officers for the treatment of disease.

It would, of course, be possible to provide a public medical service on a part-time system analogous to the present Poor Law medical service. Whatever objections there might be to the Poor Law medical service on the ground of inadequacy of remuneration, it appeared to him that the public made a good bargain in that the Poor Law patients got the benefit of the experience which the Poor Law medical officer acquired in his private practice. In connexion with any system of provision of medical attendance under a State sickness insurance scheme, part-time medical officers would have the same advantage over whole-time medical officers, but this still would not afford the advantages of choice of doctor.

If reliance were placed entirely upon private practitioners not holding any special official position, and the patient left to make his own selection, the doctor being paid out of the insurance fund, the next question would naturally be as to the method to be adopted for the remuneration of the doctor. Several methods would be possible, but the consideration of the relative merits of these was a matter chiefly affecting the medical profession, and might be deferred for consideration along with other aspects of the problem in which the profession were more especially concerned.

One advantage of organizing our national medical service in association with a scheme of national sickness insurance was the retention of the provident element in the organization of the medical service. In saying this he desired to dissociate himself from any assumption of social theories either socialistic or individualistic. He would suggest that they should avoid importing such theoretical issues into the discussion of a question of practical politics such as they were now considering, and that in deciding whether it should be regarded as part of the function of the State to intervene at the present time to promote the organization of a national medical service, whether through a State Sickness Insurance Scheme or otherwise, and in considering whether the beneficiaries should or should not be compelled to contribute to the cost of such a service, they should not concern themselves with any general philosophical questions as to the basis of social organization. In a kindred matter they had had a very excellent warning from the leaders of two of the great political parties—namely, the Prime Minister and Mr. Balfour—who in the discussion in the House of Commons on the Poor Law question had denounced the method of labels as applied to the consideration of questions of this kind, and had deprecated the application of the term "socialism" to proposals such as were then before the House of Commons. In the discussion of this question of a national medical service, there had been a tendency to import such considerations, which he submitted were out of place. He submitted that in deciding how the acknowledged needs of the community as regards the provision of prompt medical attendance should be met, they had no more need to consider abstract questions of socialism or individualism than they need understand the internal structure of the atom in order to decide what was good to take for breakfast. The data for a scientific synthesis of the principles of social organization were, he suggested, not available, but that need not prevent them from adapting practical measures to meet recognized necessities. Dismissing from their minds all such abstractions, he would suggest that it must be clear to all observers that at present there was much disease which was preventable; that the existence and effects of preventable disease were a matter of legitimate concern not only to the individual affected but to the community generally; and that one of the practical means of prevention was to make medical services readily available.

He believed that both the general body of the community and the medical profession were at the present time of opinion that the community must protect itself against the various losses which it incurred through disease by making improved public provision for medical attendance. The only practical question for consideration was how such a service could be most efficiently organized. He believed it would also be recognized that the principle of contribution by the beneficiaries would tend to efficiency of organization.

Turning from the more public aspects of the question to those in which the medical profession was more especially concerned, they had first to consider what was the position of the profession, and what was its claim to be heard by those concerned on behalf of the public before a decision was arrived at. In this, as in all such questions, the profession had, he would suggest, two parts to play. In the first place, members of the medical profession were the proper advisers of the Government on certain aspects of a question, such as that under consideration. He did not suggest that they were the only advisers, and they all knew the British distrust of the expert, but he did not see how it could be contested that medical practitioners by their knowledge and experience were specially qualified to advise the community as to the conditions which would make for efficiency in the organization of a national medical service. But, in the second place, under any such service, medical practitioners would be the employees, and therefore, in accordance with modern ideas, organized bodies representative of the profession had a claim to be heard as to the terms of employment, and it would be to the advantage of the community that upon the terms of employment the views of the

profession should be ascertained, not from individuals, but through such organized bodies.

The questions in which the profession were especially concerned were, of course, those of remuneration and of the conditions of employment which would enable the practitioner to do his work efficiently. Without going into reasons, he would suggest that among the chief conditions which would make for efficiency would be that the patient should have a choice of doctor and the doctor conversely some discretion as to his attendance upon individual patients, and that the details of the arrangement of the medical work of each district should be supervised by a medical committee.

The question of the terms of remuneration was naturally bound up to some extent with that of the system of appointment. If they had special officers, whether whole-time or part-time, payment would presumably be by salary, but, if they afforded a choice of doctor, then, as he had already said, various systems of payment were conceivable. There had been much discussion recently in the columns of the BRITISH MEDICAL JOURNAL and in the Representative Meeting of the Association as to the comparative advantages of the system of payment per head per annum (the ordinary contract practice method), and of the system of payment by fees in respect of the services rendered. He did not propose to go over all the ground covered by these discussions, but would draw attention to one point which had not, so far as he had observed, been brought into prominence—namely, the question whether payment by fee for each individual item of attendance bore, as its advocates appeared to claim, any more natural relation to the work done than payment per head per annum. He had not been able to see that payment by fee or any other particular system of payment afforded any true pecuniary equivalent of work done. Physicists had ascertained the mechanical equivalent of heat, but had any economist been able scientifically to define a monetary equivalent of labour? What magic was there in the fee which enabled any one to say that it was the proper reward for an actual visit or other medical service rendered? How did people arrive at any basis of remuneration for work? Where did the process take place as a result of which the individual doctor expected a certain fee as his recompense for a certain piece of work, and the patient was willing to pay that fee in consideration of receiving that service? Surely it resulted from a rough and ready method of subconscious averaging, arrived at in the minds of the parties as the result of experience. If we endeavoured to analyse the steps of that mental process, what were the elements which led to the result? He would suggest that on the part of the doctor the primary consideration was the total income which accrued to him as the result of a year's work. The charge of an individual fee for an individual service was merely one practical method of securing that the profession should receive a certain desired annual income as the return for the labour of the year. The labourer made his unit of income so much per week; the doctor made his so much per annum. The important practical question was that the total remuneration should be adequate. The principal point, as between the profession and the public, was to make sure that the insurance premium should be sufficient to afford the medical officers an adequate annual income in respect of the part of their time that they would have to devote to this work. The question whether the actual distribution of the funds to the individual doctors should be calculated on a basis of fee per attendance, or of so much per annum in respect of each person for the time being entitled to their services, was purely a question of practical detail and convenience as between members of the profession.

Any such system as he had been discussing would avoid the existing evils of contract practice, which arose, not as some suggested, from the system of payment per head per annum, but from the making of contracts between individual doctors and clubs as a whole, whereby one or a small number of medical practitioners became the sole medical officers to certain organizations. If the bargain were made between bodies representative, on the one hand, of the profession as a whole, and, on the other hand, of the community, or of large sections of the community, adequate remuneration would be as easily secured, if the profession were united, under the one system as under the other.

II.—Mr. C. S. LOCH,

Secretary, Charity Organization Society.

I PROPOSE in this paper to deal with the economics of medical treatment in reference to a scheme for the organization of medical treatment and the better remuneration of medical practice, such as is developed in part in the Report of the Royal Commission on the Poor Laws and the Relief of Distress, and to show that it may become substantially a scheme of insurance against sickness, or may lead up to such a scheme.

The economics of medical practice are difficult. Medical practice is a service, and should, relative to the grade of its skilfulness, be purchasable by the highest bidder according to the demand for such-and-such a grade of service. The community by examinations and registration desires to ensure that the medical practitioner possesses at least a certain minimum of skill. But subject to that the profession classifies itself into consultants with their larger fees, and surgeons, paid according to their skill and reputation, and general practitioners; and undoubtedly there is great variety of remuneration down to the sixpence payable in the poorest districts. There is thus a grading of payment presumably consistent with a grading of skill.

But this only in part represents the economic position. Probably the more knowledge progresses, the higher is the examination standard, and the greater is the skill purchasable for the corresponding fee or payment. But two considerations affect this. The medical practitioner classifies his patients according to their standing. The resident in the larger house pays a larger fee than the resident in the smaller. Hence the same doctoring, but it may be with lesser comforts and comforting, goes to the richer and to the poorer alike; and the margin of difference represents the price of social consideration in terms of medical care and solicitude. So the richer purchaser always pays more, and has, so to speak, serviettes at his dinner; the poorer may have a similar or, indeed, the same meal, but no serviettes.

This characteristic, however, is not peculiar to medicine. The prices of many things vary according to the riches or poverty of a district. On the other hand, if an offer of certain accommodation or services at fixed prices can be made to them the people are inclined to classify themselves according to the offer, in medical treatment, as in other things. There is always a population that likes to travel first class, and another that can or will only pay for third. This represents one element in the consideration of the supply of treatment to members of the wage-earning class—earning, say, under 30s. or 40s., or even 50s., a week. They may become accustomed to take second or third class tickets for treatment when definite second or third class accommodation in medicine is habitually provided at a recognized per attendance fee on association lines like the per mile payment in railway travelling.

But in medical practice there is a further difference. The question to a large extent is not what people will pay for themselves for a certain standard of medical skill, but what other people—the charitable or benevolent, for instance, or the community, as represented in its administrative departments—think should be the standard of medical skill and care for others. Thus new grades of payment, and even the negative grade of non-payment, are recognized on the understanding that there should be available for certain members of the community a grade of treatment higher than that for which they would ordinarily pay or be able to pay. The result is peculiar, and raises broadly all the questions to be discussed in relation to any proposal for insurance against sickness.

The fact that the community (as well as private individuals) desire to have a supply of skilled treatment made available for persons in excess of the skill and treatment for which they are able to pay, complicates the whole economics of medical practice. It is as though they thought some article so important for the citizen that they were ready to supply it in a superior form at less than cost price. The effect of this on a trade would be obvious. The higher-priced goods sold at the lower price would drive out of the market the lower-priced, and the producers of the lower-priced goods would be driven out of the market by degrees as step by step the process continued.

A process of this kind kind has long been in operation in medical treatment. It is now proposed by the Minority Report of members of the Royal Commission on the Poor Laws that it should have a far larger range. It is suggested, indeed, that free treatment should be supplied to the wage-earning class, and that for them payment for medical treatment on economic lines should be altogether abandoned.

Remuneration has several forms which vary according to the methods of remuneration or non-remuneration. There is the payment of the medical practitioner according to the patient's standing. To this we have referred. It is a payment for services on normal economic lines, partially neutralized by a consideration of the status of the purchaser as having or not having a greater ability to pay, a process that has a larger range in economic exchange than is ordinarily assigned to it. There is also remuneration by joint or insurance payments. The sick club which the medical practitioner starts and keeps in his own hands is of this type.

There is also the provident dispensary in which the medical practitioners of a district take part, each remunerated according to the number of the patients who attend them in connexion with the dispensary, subject to a standard of wage which should exclude all those who make a larger wage from the benefits of the dispensary.

In such arrangements of club and provident dispensary the general practitioner is, or should be, receiving his remuneration from the less wealthy of his constituents on terms more convenient to them and sufficiently satisfactory to himself. The conditions are, or should be, primarily under the associated control of the general practitioners of the place.

But in another class of work the position is different. The friendly society or club contracts with the practitioner to attend to its members at a stipulated sum; and there is sometimes much contention whether this sum is a fair remuneration for the work required. Here there is a kind of collective bargaining on the one hand, and, on the other hand, a practitioner competing with other practitioners, and disposed to think that the indirect results of his acceptance of an otherwise insufficient remuneration may justify his acceptance of it. This may or may not be the case. But, so far as it is a question of the particular contract, undoubtedly a wrong is done if the remuneration, which should be payable according to the market standard, is thus reduced.

In this case there is no question of a larger or less payment according to the patient's status. It is a question that is entirely individual to the general practitioner, and turns on his view of his own private advantage. But the quasi-unremunerative contract once accepted the practitioner cannot ruin himself; and accordingly he is placed in the position, not merely of giving less "comfort and comforting" in his services, but of reducing them to the necessary or most nearly remunerative minimum. It follows from this that the contract on his part is vitiated by his regard to indirect results. It is vitiated, as any contract is vitiated, if it is taken at a competing price, when its acceptance means a reduction of the efficacy of treatment below that which is legitimate according to the standard of medical skill and practice accepted by the profession at large.

This standard, as we have seen, is being raised by newer knowledge and a higher skill. It should follow that the remuneration in contract work should rise also proportionally. If it does not, there is a margin of effectual service that, not being remunerated, must tend to disappear in practice. If it were a kind of goods that were vended, instead of a kind of service, the result would be seen at once. The goods could be analysed and their defects ascertained; but this can hardly be done in the case of services rendered. Of course, medical service is a profession, not a miscellaneous trade; and a sense of honour neutralizes the extremes of the economic pressure. But in the interest both of the public and the practitioner, the professional and the economic interest should as far as possible be made consistent.

The same conditions appear in another branch of work. The boards of guardians often contract, as a club or friendly society may do, at times with very similar results; the evidence taken by the Royal Commission on the Poor Laws indicates this. The more expensive drug may not be given, and the patient may suffer accordingly.

Lastly, there is the non-remunerative treatment of sickness. Here, to recur to my illustration, the better goods (or services) supplied at a lower price naturally tend to drive out the middling goods (or services) charged for at higher prices. Society used to be frankly considered as based on a division of classes. The poor, or the labouring poor, as a class could not pay, at least in serious illness. Apart from the educational use of their attendance at hospitals and dispensaries they were accordingly treated gratuitously. The crowd of poor patients which attended at the house of the physician in older days was diverted to the out-patient room of the hospital or to the dispensary. In this way the physician or surgeon of the hospital or dispensary, though he gave his services gratuitously, was remunerated indirectly by assuming a higher status in public reputation, and thus the charitable or gratuitous contract has become vitiated, as has the economic and remunerative friendly society or club contract, but on different grounds.

Clearly in this as in the previous instance the remedy lies in the exclusion of the individual and incidental advantage or perquisite. The service, like others, should be paid for on a remunerative basis, only the remuneration should come not from the patient, by hypothesis unable to pay, but from his patrons. The principle is the same as that applicable to other forms of medical service.

But the argument may be pushed further—on the patient's side. Who are the poor—the labouring poor, it may be asked—for whom free treatment is desired, owing to their lack of means? Also, disease is itself, it may be said, a relative term. The man who is better off, but who suffers from a more serious trouble, requiring, perhaps, a skilled operation, is relatively poor. Should he, too, be treated free? Again, it is said the poor should have the best treatment. The same disease may affect rich and poor alike. What makes for recovery in the one should be available for the other. Hence, as free treatment, the best treatment should be offered. Should this be so? Obviously, in the mere asking of these questions a principle is admitted. In medical remuneration there must be adjustment according to the extent to which patients can pay according to their payability. In ordinary practice this principle, as we have seen, is fully accepted. But it follows that the higher the standard of skill and treatment on the medical side, the greater should be the discrimination on the economic side, unless in these circumstances economic considerations are to go to the wall, or, in other words, unless medical treatment is to be provided to the vast mass of the people on a system of remunerating the medical practitioner by a new universally or very widely applied contract, as between the State and the mass of patients, or by, what may be the same thing, a State salary which would now, or in time, be in the nature of a contract similar to the contract with the club or friendly society or with the Poor Law guardians.

We have, then, this alternative—a new discrimination well founded and generally accepted, or a free system of medical treatment for the mass of patients on lines of State contract. In lieu of the latter there may be a system of sickness insurance established by the State, in part supported by the State, and made compulsory for the mass of patients—say, for instance, of patients earning less than 30s. or 40s. a week. But here, again, the lines of remuneration would be those of contract or of salary similar, in fact, to remuneration by contract. We have thus to consider on the one hand the possibility of a new discrimination and classification of patients, and on the other a salaried or contract State system resting on a free medical service, or on insurance.

Let us take the method of discrimination first. Clearly it depends on a recognition of a minimum non-payment class. We have seen that in principle medical remuneration must be given according to status. By the doctor's club or provident dispensary system, working under the conditions set out above, this remuneration is brought down to the insurance or associative level—the level, that is to say, which represents the lowest legitimate scale of payment, because on the basis of mutual aid a lower payment can legitimately be made by the patient than on the basis of separate arrangements entered into for himself alone, and for the same reason a lower payment per case is

remunerative to the practitioner. Mutual aid serves both parties, the doctor by increasing his clients and regularizing their payments, the patients by reducing their fees. Can we work out our problem on this basis? If we can, there are some plain advantages in so doing.

First, the method is already at work on a large scale in different parts of the country. The doctor's club is everywhere: the provident dispensary in the treatment of patients at which the general practitioners of the district participate is a widespread institution. In these institutions there is not a contract practice in the usual, or injurious, meaning of that term. Two things are considered—the general standard of the professional charges applicable to the poorer class and remuneration to the practitioner, and the ability of the poorer class to pay such charges. The profession in the district as a whole settle the one. The patients of the poorer class in the main accept or reject the standard and so settle the other. Contract, that is contract by which an individual practitioner is bound over to fulfil terms quite unremunerative to him (unless it be for certain incidental or speculative advantages), is avoided. There is mutuality on both sides—as between the members of the profession on the one hand, and as between the members of the dispensary on the other. Where these conditions prevail the agreement that is made between the parties can hardly be called a contract in the sense of a "rack-rent" contract.

But there are possible loopholes. The individual patient may stand out and go to the hospital or to the Poor Law. The individual practitioner may stand out and evade the generally accepted terms or undercut them. In fact, there must be competition in the supply of services, but it must also be competition adjusted to social considerations—which, indeed, it is already to an extent not generally recognized. Members on the one side or the other may no doubt wish to escape from these social considerations. But clearly the only way of preventing this is to bring the outlying country to which they may escape under the same general regulations as the country from which they flee. Dr. Dewar, in a recent paper in the BRITISH MEDICAL JOURNAL, says:

> Another scheme is put forward which is based on the fact that on a wide average each club member receives four to five visits and consultations a year—the payment per visit system. Allowing 2s. or 2s. 6d. for each attendance, this would mean a subscription of 10s. a year. This proposal would be a great advance on the 3s. to 4s. club.

He infers that such a standard might be acceptable in a system of State sickness insurance. But if this or some similar standard be accepted it may have another application. Why should it not serve, *mutatis mutandis*, as the basis of remuneration of medical officers under the Poor Law? If this was accepted the medical officer would, on the whole, be remunerated on the same basis as his professional brethren outside, so far as his official services went. Outside there would be a fee payable by patients of less than a certain financial ability, as agreed by the local representatives of the profession; inside, a similar fee would be payable on behalf of patients who were unable to pay the recognized fee. But the standard of remuneration of the practitioners would be equal, or approximately equal, in both cases. If the applicant for Poor Law medical relief was unable to pay the club fees at the time of his application but might do so later, he might fairly be put on the medical club, and his joining it would not injure the profession in any way.

But there are other considerations. The illness may be so serious as to require admission to a hospital for treatment or for operation. For these patients at the hospital or at the Poor Law hospital or infirmary there might be a tariff of charges, and these charges, settled as nearly as possible by the consensus of the profession, would be payable by the patient and his friends, or by the Public Assistance. Now the hospital subscribers pay the charges of maintenance, nursing, and drugs, but not those for the physician's or surgeon's skill. On this plan there would be that additional charge. There would not be more dependence on the part of patients, but probably less. But behind the medical club, and behind the medical relief of the Poor Law to those who have not joined the club, there would in serious cases be the use of the hospital or the infirmary on terms throughout equally remunerative to the profession.

The member of the medical club might perhaps go more fitly to the voluntary hospital than to the Poor Law infirmary, but there would be cases in which this was not desirable; and so vice versa in the case of patients who attended the district medical officer. In this way all those who have, say, less than 35s. or 40s. a week would be provided for, and the utility of the system would declare itself. The argument that free medical relief was necessary because only if it were free would the patient, as soon as he felt ill, apply for medical assistance, would fall to the ground. The patient obtains assistance on good terms, whether he be a member of the sick club or an applicant to the Poor Law. Nevertheless there is discrimination. Most men like independence. On this plan the administration fosters it.

But there is another loophole—the out-patient department and the free dispensary. If the principle here adopted be right—that of payment according to work done—somebody would pay the medical man who conducted the out-patient work. As officers in this department they should claim a payment similar to that which would be accorded to them in club practice; and this can be provided also in the two ways of payment for and by the patient or by the supporters of the institution. And it should not be impossible for the authorities at every hospital to refer cases to the recognized dispensary or club, as it is suggested the Poor Law authorities should do in suitable instances.

In every suitable district there would be a recognized and official Medical Assistance Committee according to the Report of the Majority of the Royal Commission on the Poor Laws, and it would be its duty to promote the provident system on the lines I have mentioned and to co-ordinate the medical agencies and resources of the place. This I believe it could do in accordance with suggestions such as those that I have ventured to make.

If in fact there is a large class below the provident level on its lowest lines, that class would become the claimants of the Poor Law or the voluntary hospitals, as the Medical Assistance Committee would arrange. And so the difficulty of medical economics would be met—that philanthropists and administrators want for their clients better attendance than their clients can pay for, under conditions that militate against the proper remuneration of the medical profession.

Dr. McVail proposes that the public dispensary system should be subsidized by grants from the rates and taxes. He very naturally concludes that without this financial help there will not be a large enough expenditure on the buildings and organization of the dispensary, nor a sufficiently strong centre to which the medical ability and influence of the district would gravitate.

Suppose this plan adopted, you would have a part-pay, part-State organization of medical relief for all classes who could not, or would not, pay the fees that would be required of them according to the standard of club fees. If the provident system were rigidly adhered to or made compulsory, and the loopholes that might lead to an extension of any voluntary and non-payment system blocked, you would have practically State insurance against sickness with the advantages: that the great body of the profession would be included in the new arrangements; that an agreed standard of remuneration would be payable for a similar service, whether in ordinary practice or in public assistance, or in voluntary work; and that the medical resources of the community would be brought into one co-ordinated system.

Whether the step should be taken of applying public funds to the maintenance of the public dispensaries, I am doubtful. On the whole I am against it. But if the present policy of a large expenditure on public health is to continue, the dispensaries as most useful centres for the prevention of illness as well as for its cure would no doubt inevitably receive official support. But throughout it must be remembered that medical aid must be discriminative, and where the means of the patient are insufficient, public assistance or voluntary aid will have to be forthcoming, as heretofore, though under different conditions. No State system without these will work, not even a State sickness insurance system.

Now suppose, in lieu of this, State insurance against sickness introduced. Then, according to a scale, payment would be made by employer and employee with a *plus*

probably from the State as in some measure equivalent to such a scale as that of the recognized public dispensary. With it would no doubt come some arrangements, as in Germany, for paying for beds in voluntary hospitals; and the Public Assistance hospitals would also have to be used. A large fund might accumulate in the hands of the State that might be used in part for the erection of sanatoriums or for the perfection of the medical service.

In both cases the recognized dispensary system and the insurance system sums would be levied from the possible patients, but on the dispensary plan the levy would be voluntary. In both cases, if provision has to be made for a long illness, the Public Assistance authority may have to intervene. Thus in many features the two plans are alike. Take away the voluntariness, and the differences would practically disappear, except, perhaps, on one point—the payment of the medical man. According to the height of the scale of wages for persons entitled to join the dispensary or the insurance scheme, all or almost all the medical practice for the poor or the not-so-poor would become organized, but in the one case on lines of remuneration generally applicable and accepted as such by the medical profession, and in the other on the lines of salaries paid by the State.

If the salaries are based on bare competition, the evils of the present remuneration of district medical officers would be repeated on an enormous scale. If the salaries are payable on what I may call medical association lines, the State would make less profit, and be able to invest less in sanatoriums or other institutions, but otherwise the methods would again be brought into an equality.

But that a dispensary system would impose on the country a much lesser burden of administration is undoubted. It would also entail less red-tape and friction. It would be more consistent with our habits of thought and life. It would be regularized, though voluntary.

To adopt this view is not by implication to oppose invalidity insurance on German lines for long-continued or permanent disablement. A dispensary system of the type we have been discussing, and a method of insurance against invalidity, appear to me to be quite consistent.

DISCUSSION.

Dr. J. PEARSE (Trowbridge), approaching the subject from the standpoint of the general practitioner, said that the latter might not be an expert sociologist, but if his work lay mainly among the poor he was brought into very direct contact with the people, and should have abundant opportunity of knowing their needs. The opinion of the general practitioner was therefore of some weight. As regards the effect of State medical insurance on the public health, there were two points of view—one which regarded sickness as something to be cured and one which regarded sickness as something to be prevented. The latter was that of the Minority Report. It aimed at the removal of all restrictions connected with the seeking of medical relief, at the merging of the present Poor Law system into the departments of the medical officer of health, whose inspectors would search out illness and whose officers would treat it. The ideal was

> Positively to search out every case, even in its most incipient stage.

He was in sympathy with the ideals animating the authors of the report, and were the results a certainty the methods would have to be acclaimed regardless of the cost. But the report expected altogether too much, and there was not sufficient justification for the radical suggestions made. For instance: (1) Though the strenuousness of the medical officer of health had effected much, it was still baffled. With all the vast expenditure on isolation hospitals, diphtheria and scarlet fever were still rife; and it was seriously questionable whether the result was proportionate to the cost. (2) The analogy drawn from the diminution which had taken place in zymotic diseases and in diseases of occupation did not hold good in the sphere of other maladies, and the speaker was puzzled by some of the observations made. Thus:

> Similar reasoning can be legitimately applied to chronic bronchitis, which can usually be prevented, if the acute stage is properly treated; to catarrhal pneumonia, which is often the precursor of phthisis; to the heart diseases that are due to acute rheumatism; to chronic kidney disease; to some forms of cancer, which are curable if operation is early enough.

Now, as a matter of practical experience, chronic bronchitis did not depend only on a badly treated acute attack, but usually on quite other conditions; catarrhal pneumonia was seldom the precursor of phthisis; heart disease would develop in a rheumatic case treated with every care; chronic kidney disease more often developed insidiously than from a neglected acute attack. This was but an illustration of other similar statements, which raised an altogether illusory hope of the prevention of disease. (3) The beneficial results portrayed depended on other matters than inspection and medical treatment. The "cure of the social bad habit" was a recurring phrase in the report, but the cure depended not on the advice given, but on whether society or the individual would accept such advice. Legislation would not cure human nature. (4) Doubtless much sickness among the poor was preventable, and if intemperance and vice were abolished, housing improved, employment and abundant food found for every one, the golden age might dawn; but these things depended not on the *ipse dixit* of the medical officer of health, nor were they the growth of a day. Hence treatment of disease would still be for long the prevailing need. Prevention of disease was the ultimate aim, of course, but the time had not yet come for subordinating all other medical considerations. There was certainly room for co-ordinating other forms of medical assistance with the sanitary services, and much amelioration would result. But, as Dr. Downes had put it:

> The separate functions of the two services are, however, quite definite, and any amalgamation of them such as is suggested would be detrimental and contrary to the public interest.

If medical treatment must still form the keystone of any system of State medical assistance, it followed that the services of general practitioners must still by some means be retained in the service of the State. Despite their tendency to medical demagogy, addiction to the panacea of a bottle of medicine, and failure to cure the social bad habit, they were an asset with which the State could ill afford to dispense; and it would not be in the interests of the community to substitute for them salaried civil servants. There was no work in which so much depended on personal initiative, in which there was such a constant stimulus to self-improvement, and in which reasonable competition was so salutary. The success of medical demagogy was for a day; the success of strenuous work was for a lifetime. Let the State ask general practitioners for their best and remunerate them for their best, and the interests of the public and the profession would both be met. In the present system of contract medical attendance no attempt had ever been made to co-ordinate payment and work; that error should not be repeated now. The most elaborate return of sickness experiences which the speaker had seen was a report prepared for the Manchester Unity of Oddfellows. It showed that the average yearly sickness of each member was 2.344 weeks, a much higher figure than was usually realized. A diagram prepared by the speaker from Table III of that report showed the rate of sickness per member per annum at various ages for the periods 1866 to 1870 and 1893 to 1897 respectively. In the latter the lowest amount of sickness was 0 9 week at the age-period 20 to 24, while it rose steadily at each age-period, and rapidly after middle life, till it reached the high average of 10.5 at the age-period of 65 to 69. It was important to note that sick benefits were based on figures such as these, and medical benefits should be similarly computed, and the remuneration not guessed in some haphazard fashion. When the differences in the two tables were examined, it was seen that the latter table showed a steady rise in the sickness-rate. This was most marked at the higher ages, but was sufficiently obvious throughout all the age-periods. To quote from the report:

> Up to 45 years of age the average sickness has exceeded that of the period '66–'70 by 21 per cent.; between the ages 45–65 the excess is equal to 26 per cent.; at the ages 65 and over it is no less than 45 per cent.

This is a very striking fact, considering the increase in the health of the community as a whole. Did it mean that with an extension of sickness insurance there had been an increased tendency to come on the sick fund? A recent paper on observations on the health statistics of the German people and army stated:

> Owing to the workmen's compensation and invalidity insurance acts, what is called in Germany *Rentensucht* (=a desire

to live at ease on an unearned income) has seized hold of the working class mind and encouraged men to make the most of small defects and ailments.

The speaker was insufficiently acquainted with Germany to gauge the correctness of this statement, but quoted it to emphasize the necessity of carefully scrutinizing sickness claims in the interest both of the public and the profession.

Dr. Keay (Greenwich) said that for a number of years he had taken much interest in State insurance. A few weeks ago he had received the official sanction of the Government to make inquiries on this subject in Berlin and Hamburg, and from the Embassy at Berlin and the Consul-General at Hamburg he had received every possible courtesy and attention. On that account he could probably best contribute to the discussion by giving his recent experience, as the position in Germany a few years ago was now ancient history. Before doing so, he would like to refer to the main points in Mr. Whitaker's paper. Among the various methods of arrangement between the doctor and his patient there was, first of all, that of private practice, according to which the patient paid for each visit or consultation. That still held good to a considerable extent in Scotland and the North of England. He believed that it was the best, but, unfortunately, in large centres of population it was now seldom practicable. There was, secondly, attendance by means of clubs and friendly societies; and, thirdly, that of the charitable services. As to the last he could not trust himself to speak dispassionately, as he regarded the method of attendance by out-patient departments as utterly demoralizing to the community at large. There was the same position in Germany nearly thirty years ago. The membership of friendly societies was then, not as generally stated, large. To meet such defects as at present existed in England State insurance was introduced in Germany more than a quarter of a century ago. The Act was not perfect, and a new bill had recently been introduced. It consisted of 1,754 paragraphs, and over 400 of these had been discussed by a Parliamentary Committee. Unfortunately, there was a wide difference of opinion, and unless greater progress was made the probability was that the bill would never come into force. That bill had unfortunately accentuated the differences that for some time had existed between medical men and the working classes. He had discussed the subject with medical men, State and insurance officials. No one could speak dispassionately on the subject. Insurance officials said that the medical men were extortioners and were plundering the working classes; that it seemed unreasonable that medical men should make an income of £500 or £750 a year almost as soon as they began practice. Medical men, on the other hand, said that they were pitifully underpaid. It had recently been often stated that the average income of a medical man in this country was about £250 a year. He knew no grounds for coming to that conclusion. The income of medical men in Germany was more easily ascertained, as the amount on which taxes were paid in certain States had been published. There was probably at the present time not much difference in the financial position of medical men in the two countries. In Germany there seemed to be a general belief that the prospects were not so bad as was generally stated, as the number of medical students within the past six years had almost doubled. The main point of dispute between medical men and the working classes was as to whether patients should have a free choice or medical men be under control of insurance officials. Of the 36,000 medical men in Germany, 24,000 were banded together to resist this dictation to the utmost, and it did appear strange that while this fight was going on in Germany there should be so many medical men in this country who were willing to subject themselves to public bodies. There could be no doubt that the compulsory insurance system had done well for the working classes in Germany. In the southern agricultural districts and in the large cities of the United Kingdom there were many whose wages were so small that at the end of their days there seemed no other prospect but the workhouse. By State insurance provision was made as soon as work was begun for sickness, old age, and invalidity. The consequence was that there was a feeling of independence among the working classes in Germany that many in this country did not possess. In Berlin he found no slums. In Hamburg alone was there anything approaching widespread poverty and misery. He trusted that the British Medical Association would now be able to devise some scheme so that it could not afterwards be said by the Poor Law Commission or any other authority that the system of medical attendance, or rather want of attendance, in this country was a prolific source of misery and pauperism.

Mr. H. W. Armit (London) expressed his disappointment at finding that the majority of the speakers had dealt with the theoretical aspect of the question, and had more or less ignored the fact that we were twenty-five years behind Germany, and that it was possible to pick up the threads at the point which had been reached in Germany. It had been amply proved that compulsory insurance had effected a marked change for the good in the public welfare. The much-spoken-of feeling of independence of the British workman was a poor asset when this independence was bought at the expense of prosperity. It was far better for an individual to give up this false idea of independence when starvation stared him in the face, and to be content if the State—that is, the community—made provision whereby he could meet his difficulties. In order to render compulsory insurance possible it would be necessary to control the community by police registration. Without registration it would be impossible to effect a complete system of insurance. The State could provide for itself and procure medical attendance and sick pay in exchange for premiums paid by the individual and the community in varying proportions, and, as a result, the general status of the individual would tend to improve. Self-respect would be created and not destroyed, and thus, indirectly, real independence would emanate from submission to registration and enforced insurance. If the community gained by such a scheme—and the speaker was convinced that it would—then the medical profession would also gain. Apart from the fact that the medical profession was a part of the community, it would be possible by selecting the good and refusing the bad of the German scheme to guarantee a living wage for each professional man. In Germany the condition of the profession was scarcely worse than it was in this country; but it must be remembered that we in this country could take advantage of Germany's experience of twenty-five years, and avoid those pitfalls into which our colleagues in Germany had wandered blindly. Dr. Keay had stated that there was extreme poverty in Hamburg, while the reverse held good for other German towns. He disagreed with this statement, for not only had he found the conditions in Hamburg far better than those of London or other large English towns, but the speaker's Hamburg friends on coming to London had on more than one occasion remarked on the number of tattered beggars and derelict persons in the metropolis. This observation was the more striking as there were more slums in Hamburg and more misery than in other German towns. It had been suggested that the introduction of compulsory insurance would of necessity bring with it a large amount of malingering. This might be so, but the German method of safeguarding against this was eminently satisfactory. If a person was thought to be malingering, or if doubt existed with regard to the reality of his complaints, the person was subjected to a period of careful observation by an expert in some suitable institution until a certain diagnosis was arrived at. This might occupy weeks, months, or even years, but from the experience in Germany it could be said that malingering was usually found out early, and prolonged observation was only required in those cases which were known as traumatic neurosis. In this way what was known as "*Rentensucht*" was readily controllable, and malingering could be kept within reasonable bounds. He agreed with Mr. Whitaker that it was immaterial whether the medical practitioner was paid according to the work done or by stipend, provided that a fair return for his labours was accorded him at the end of the year.

Dr. Major Greenwood (London) said that of the two factors mentioned by Mr. Whitaker as preventing prompt attendance in sickness—namely, (1) the feeling of inability to bear the expense, caused by honest feelings of inde-

pendence, and (2) the natural inertia due to carelessness or ignorance as to the serious necessity of prompt attendance on disease—the latter factor was by far the more important. This inertia was really the great drawback, and it was shown to be so by the same carelessness being found throughout all degrees of society. In these days of growing enervation of the lower classes—due to State interference with that independence which it should be the object of all statesmen to maintain—it was most necessary to instil provident ideas among the working classes, and to teach individuals that it was not a good and wise principle to expect the State to do everything for them. The scheme of the Association to provide a national public medical service on provident lines was a very good one, so long as it kept apart from and did not interfere with a proper medical service for the treatment of the destitute or State poor, and it ought to be loyally supported by all its members. One reason for forming this medical service was to have a professional organization ready to undertake the increased medical work naturally resulting from a Governmental scheme of invalidity insurance. It might be a very good thing if all such work were handed over to the British Medical Association, but this was very unlikely to be done. The friendly societies and their numerous doctors would have to be considered. The former had vast political powers, and at the present time would never consent to allow all the medical work to fall into the hands of the Association. The latter's first step should be to organize a better medical service than at present existed, and to endeavour to get into its hands by degrees all the clubs and friendly societies. Then there would be little difficulty in getting nearly all this invalidity work. At the present time the only practical course likely to be taken by the Government was to develop compulsory insurance, thus securing an adequate income for workmen, and leaving them to provide themselves with what medical attendance they chose. He approved of what had been said by Mr. Whitaker regarding the Minority Report, and endorsed every word spoken by Dr. Pearse. Sanitary science belonged to the general practitioner as much as to the sanitary medical service. The improvement in the national health witnessed in late years was quite as much due to the medical profession in general as to medical officers of health. He quite agreed with Sir A. Downes that there must be a separate medical service to attend to the necessities of the State poor. It must be co-ordinated with the sanitary medical service, but be kept apart from it. The speaker regarded the abolition of destitution as visionary. In this age of multiplication of degenerates, preventing destitution from increasing would suffice to absorb all efforts. The independence of the working classes had been sapped by the abuse of charity and the growing tendency of the man in the street to look on State provision of all necessities as within the vista of practical politics. He could not agree with Mr. Armit in his regret at the feeling of independence of the British workman. That feeling was a great national treasure, although diminishing. As a Poor Law medical officer he had repeatedly seen it in the very lowest, and his strongest sympathy had been for those among the very poor who had genuinely felt the hardship of having to give up their independence. When poverty reached a certain stage individual independence must be sacrificed, but this independence should not be interfered with till the public welfare absolutely demanded it.

Dr. W. HOLDER (Hull) repudiated Mr. Loch's suggestion that skill and reputation in the medical profession were regulated by price. Skill and practical training were as highly developed in parish and general practice as anywhere. It was a pity some of the speakers had no experience of the difference in the conditions of practice among the poor in London and those among the workers in the North and Midlands of England, nor of the difference in the degree of independence of the poor of London and the workers of the North and Midlands. There was already in England at work a national company insuring against poverty and finding payment for medical attendance for the patient during sickness. It seemed to be working successfully. It paid fees of 1s. 6d. per consultation and medicine, and 2s. 6d. per visit and medicine for two days, and adequate fees for operations, fractures, etc. These fees were paid by the society with regularity at the end of each month. Hundreds of practitioners whose ledgers in the past had been filled with unpaid accounts, and who had been forced to write off these accounts as losses, had benefited by the system of the National Deposit Friendly Society. It had been able to make regular payments for the work of attending these bad payers, and the result had been a superior average return to the practitioners. In view of the success of the society the Government should investigate its system before drafting a bill on the subject. The British Medical Association had at first objected to this society, but time had modified this opinion considerably. The system tended to enlarge practice, and preserved the independence of the wage earner and of the medical practitioner. In any scheme brought forward the management should not be left in the hands of those receiving benefits. The degradation of medical men working under the usual club management was deplorable. The management and supervision in a good system should be carried out by men of experience, and not by those whose sole qualification was a high university degree. The managers should have served an apprenticeship either before or after graduation in some district where experience could be gained of conditions similar to those which they would have to govern or inspect later. Having carefully surveyed the whole question, the speaker was convinced that there was urgent need for the profession to take a practical and not a sentimental view of the demand for an alteration of the conditions of medical attendance on the wage-earning classes. All honest men must desire full inspection of their work, provided that this be a proper one. He would go as far as to suggest that statistics might be required from those employed under the scheme. If such statistics were made compulsory, Mr. Loch's dictum would rapidly be disproved.

Dr. A. BYGOTT (M.O.H. Barking) said it might interest Dr. Pearse to know that medical inspection of school children at all ages revealed that the great majority had not suffered from scarlet fever; both this disease and diphtheria had lost much of their terrors. It was a great mistake to imagine that the medical officer of health was unsympathetic in his attitude to the general practitioner. As for the speaker himself he had been in general practice for seven years, and had not forgotten the conditions. It was also a mistake to relate disease too much to moral obliquity. Careful inquiry had revealed that the relationship was not so intimate as was formerly imagined. The speaker had tried to follow Mr. Loch, but all he could get out of his scholarly dissertation was that it was better to let sickness insurance alone and proceed to the elaboration of club practice as an intermediate stage. It would be well if Mr. Loch would study carefully the British Medical Association's report on contract practice. It was not in club practice that solution of difficulties should be sought. Club practice permitted great indignity and injustice without providing opportunity of appeal. The medical officers of health were anxious that as much of the work as possible should fall to the lot of the general practitioner. At present, in the speaker's own district, it seemed that only about 5 per cent. of the defects found in school children were treated by the family doctor. Even cases of whooping-cough and similar infectious diseases were taken to the out-patient departments of the London hospitals. Though these conditions should cease, it must, nevertheless, be realized that the hospital factor could not be disregarded in any scheme for State insurance. The manner in which the private practitioner was to be remunerated when his patients went to hospital should be clearly defined. An attempt to limit the access of persons to hospitals would be an unpopular proceeding. When giving evidence before the Royal Commission, the speaker advocated the setting up of an invalidity and sickness insurance scheme on the German lines, but at the same time pointed out its difficulties. A very large number of people would be unable to pay contributions, and just in this section the largest amount of disease was found. The mass of the profession could not hope to have such cases distributed among them, especially as they were supposed to be dealt with at present by the Poor Law doctor, who as an officer of the State had security of tenure. His claims to retain these patients would have to be properly considered.

Some check would be arranged to satisfy the public as to the medical certificates which enabled the insured to obtain monetary and other benefits. In the case of a certain railway company which had appointed a medical examiner to report on cases certified as fit to receive benefits, the amounts paid out had diminished enormously. It was a mistake to imagine that the entire settlement of the question rested with the meeting, because there were many and various interests at stake, and it was necessary to act on the fullest possible information and with the greatest possible care. The position of the profession was an advisory one, and the members could not compel compliance with their wishes; they must be reasonable. Before making any arrangements for any class with which the organizers were not familiar, the habits of that class should be carefully studied in order that the schemes proposed might be compatible with them.

Dr. MUIR (Glasgow) took up the question of the independence of the British workman, and pointed out that north of the Tweed there was a strong feeling of real independence, which he considered was of importance to the community. In dealing with the general principles involved, he came to the conclusion that it was by no means necessary for any Government scheme to be carried out. He was of opinion that the recommendations of the Minority Report were absurd. The Charity Organization Society's proposals did away with the necessity of State insurance. Medical attendance on the working classes was required to remedy the results of vicious practices in 75 per cent. of the cases. The speaker then dealt with the conditions of medical attendance among the poorer population in Glasgow, expressing himself in favour of leaving certain patients in the hands of specially appointed State officers.

Dr. LARKING (Buckingham) doubted if the friendly societies would give up their work in favour of a State insurance scheme. He was convinced that they would object to it strongly. In respect of remuneration it was easy to determine how much work would have to be carried out by examining the sickness statistics of the friendly societies and the Association's contract practice report. The sum of from 8s. to 10s. a year should be the minimum. A scheme based on payment for work done would entail too much clerical work. Conditions in Germany were not comparable with those in England, owing to the fact that friendly societies did not exist there. The profession had to deal with three classes of persons: (1) The very poor, the lazy, and the casual labourer; (2) the wage-earning class; and (3) the middle and upper class. No. 3 should be left alone, No. 2 should be dealt with by the friendly societies, and No. 1 by the destitution authority. In country districts any one who was ill could get either the parish doctor, the club doctor, or the private doctor. He deprecated the statement that the British Medical Association was not strong enough to carry any weight. It had 22,000 members out of about 30,000 medical men. It should put its back to the wall, and make a stand.

Dr. A. H. WILLIAMS (Harrow) considered that the payments made by the National Deposit Friendly Society were better than those in vogue in other forms of contract practice in this country. During a recent dispute in his own neighbourhood the profession asked for the payment of 5s. per head instead of 4s., and the larger societies suggested a system on the lines of the National Deposit Friendly Society. Eventually, however, these same societies found that, while they could afford to accept the terms of 5s. per head, they could not pay on the other scheme. His own experience of the system of the payment by the beneficiaries of a fixed sum into a fund, and the allocation of the sum collected to the doctors in proportion to the number of visits and consultations, had shown that the amount of clerical work required rendered its general application unworkable. He approved of the suggestion of 8s. to 10s. per annum. There should be free choice of doctor for those who paid, but when the contribution was paid by any organization, it was the organization which should have the right to select the doctor.

Dr. R. WALLACE HENRY (Leicester) said he had studied the dispensary system for some years and strongly supported Mr. Holder's praise of the good work of men attached to the dispensary services, and supported the principle of contract service with a clearly-defined wage limit and with State registration. He advised members not to depend on the assistance of the friendly societies in fighting any Governmental scheme, as it was well understood that such a scheme was being drawn up with consultation with those societies.

Mr. SMITH WHITAKER, in replying on the discussion, said that as for the specific question whether there was evidence that the Government had been in conference with the friendly societies concerning its contemplated scheme, he had been assured on what was practically first-hand authority that there had been such communication. It might or might not be true, as Mr. Armit contended, that the problems had been worked out through the German experience, but as regards the provision of medical attendance, the German methods did not appear to have been very successful, and he doubted whether any satisfactory conclusion could be drawn from their experience. There was always a difficulty in applying conclusions drawn from the experience of one country to the circumstances of another. For example, the provision of medical attendance through the friendly societies was much older and more strongly rooted here than in Germany. It would be necessary to make a careful examination of the condition of affairs as it actually existed in this country to-day and deal with the facts thus ascertained. The differences between the National Deposit Friendly Society and the Association had nothing to do with the system of payment of fees per visit, but arose from the unwillingness of the society to alter the wording of certain rules which did not conform to its declared intentions, and which had been shown in practice to lead to difficulties with the medical profession in certain districts. As for the suggestion that payment by fee per attendance afforded a fairer basis of remuneration than payment per head per annum, so far as he had been able to observe, the majority of the members of the profession desired above all things that their incomes should be as steady as possible. He would point out that payment by fee per attendance would lead to much greater fluctuation in the income than the system of payment per head per annum, because in the former case there would be not only the variation in the number of patients who constituted the member's *clientèle* for the time being, but also the fluctuation due to the variation in the amount of disease prevalent at any time. Dr. Bygott had questioned the power of the profession to enforce its own terms in connexion with a system of national insurance against the cost of medical attendance, but this was contrary to the experience of the Association. In recent years, even with the present imperfect organization, it had proved possible in a number of instances to prevent the acceptance of unsatisfactory conditions of employment, and their organization was steadily improving. The number of those who would accept an appointment which it was clearly disloyal to the profession to accept was now very small, and they were usually persons whose services were not satisfactory to their employers. The Association had already, in fact, sufficient influence to make it preferable for the Government, or any other body concerned in the organization of a medical service, to consult it beforehand as to the arrangements rather than have differences afterwards. It could advise as to the arrangements that were likely to work smoothly and those which it would be well to avoid under penalty of risking a complete breakdown.

THE International Congress of Physiology will be held at Vienna from September 27th to the 30th. The number of communications and demonstrations on the programme is 175.

THE Metropolitan Asylums Board has made arrangements for two separate courses of lectures and demonstrations in hospital administration for the benefit of candidates for the Diploma in Public Health. They will begin respectively on the second Monday and the second Thursday in October; the courses cover the same ground, and only differ in respect of the day of the week on which the lectures and demonstrations are to be given. Their duration is three months, and the lecturer is Dr. J. MacCombie, of the North-Western Hospital. The fee is £3 3s.

SECTION OF ODONTOLOGY.

J. HOWARD MUMMERY, M.R.C.S., L.D.S.Lond., President.

PRESIDENT'S INTRODUCTORY REMARKS.

THE President initiated the work of the Section with a short speech, in the course of which he said: The great importance of dental surgery among the other departments of medicine is now fully recognized. Many of us have lived to see great changes in this respect. Not so many years ago the practitioner of medicine or surgery paid little or no attention to the mouths of his patients. The last thing to be examined was the mouth, and this is the more astonishing when we consider the profound effects upon the whole body caused by unhealthy teeth and oral secretions.

In my early days of practice, immediately following the introduction of the antiseptic methods in surgery, when a patient was being prepared for a serious operation no thought was given to the state of the teeth, while at the present day no surgeon would operate without first ascertaining that the condition of the mouth and teeth was not likely to be the cause of septic complications, the removal of diseased stumps and the treatment of the teeth and gums being now held by most surgeons to be part of the routine of an important surgical operation.

Again, the profound constitutional effects of pyorrhoea alveolaris are more thoroughly appreciated, and the serious disturbances of the general health brought about by this disease have received great attention during the last few years.

The vaccine treatment of this disease has brought our speciality still more into touch with the general profession of medicine. Good results from this treatment have been obtained in many cases, and, although it may not have quite fully realized our expectations, we have every reason to hope that further advances in our knowledge of the action of the defensive substances of the body will lead to a great advance in the successful application of vaccine-therapy in this and in other bacterial diseases.

The recent more intimate association of the dental with other branches of medicine is beneficial both to the specialist and to the profession generally.

It tends to prevent narrow views on either side, and we cannot but think that a great advance in forwarding the real interests of all branches of medicine has been attained in the foundation of the Royal Society of Medicine, and the institution of a Section of Odontology in the British Medical Association still further cements this bond of union.

Very close study has to be given to such a very special branch as ours, and we are no doubt very apt to become narrow in our views; it is only by the due appreciation of side-issues that a full understanding of the significance of disease can be arrived at.

The great subject of prophylaxis is now coming prominently to the front, and the efforts of the physician in the future will be more and more turned to the prevention of disease.

We have hope that in the near future the concentration of attention given to this subject will lead to the discovery of methods of preventing many terrible diseases that still defy all the efforts of science, but much has been done in the past, and many diseases either banished from civilized countries or so modified in their pernicious effects that, like small-pox, they have ceased to be a continual menace to the population.

The prevention of consumption is now occupying the attention of medical science throughout Europe, and this terrible scourge is being dealt with in a far more efficient way than hitherto. Already the campaign against tuberculosis is bearing fruit, and there is every reason to anticipate a considerable reduction in the mortality from this widespread disease, chiefly through the more effective measures of prevention that have been adopted.

The deterioration of the public health due to the presence of defective and diseased teeth is also a scourge that until recently has not been sufficiently taken into account, and in the discussion we are about to enter upon we shall hope to present at all events the chief factors concerned in the great increase of dental caries in modern times; and we hope that at this meeting we shall have done something to advance the prophylactic treatment of this disease. Much has been done in other countries, notably in Germany, especially by the early treatment of children's teeth; and England is now looking the question in the face, and we feel sure will not be long behind other countries in this great effort for the amelioration of the race.

THE EFFECT OF FOODSTUFFS IN THE CAUSATION AND PREVENTION OF DENTAL CARIES.

By J. SIM WALLACE, D.Sc., M.D., L.D.S.

[ABRIDGED.]

I PROPOSE to try to give a brief outline of the principles of the prevention of dental caries in so far as the effects of foodstuffs are concerned. For the sake of simplicity I shall avoid reference to various conditions such as warmth, moisture, the presence of bacteria, and more or less free exposure to the air. These conditions are so constant that they merely need mention. But there is a variable condition which when present is inevitably followed by caries, and this must be more fully noted. This condition is stagnation of fermentable carbohydrates in more or less immediate contact with the teeth, and undisturbed by the free access of saliva. It is now generally recognized in England at least that this is the important point, and not the existence of carbohydrates in the food.

It is obvious that the teeth may be of a shape such as would predispose to the undue lodgement of carbohydrates, and that their arrangement and relation to surrounding parts may have the same effect. In other words, the predisposing causes of caries are abnormal pits and crevices, irregularities of the teeth, recession of the gums, and abnormal relations of the gums, more especially round the wisdom teeth. Practically all these predisposing causes may be prevented, and it is chiefly through the medium of the foodstuffs that this may be done.

Referring now to the direct cause of caries, there are two classes of foods: (1) Those which tend to leave viscous and fermentable carbohydrates about the teeth; (2) those which tend to brush them away. When we observe what actually happens during mastication, we see that it is chiefly food of a fibrous nature which stimulates efficient mastication. The more or less liquid part and suspended particles contained in the fibrous meshes are expressed and swallowed, while the fibrous part is again and again subjected to crushing and disintegration between the teeth. Such foods are naturally chosen and consumed by adults, but when we turn to the foods which children are compelled to live upon very largely—for example, milk, porridge and milk, sloppy milk puddings, bread soaked in milk, potatoes and gravy, bread and jam, etc.—we realize the absolute impossibility of efficient mastication being carried out. We see further that what really is stimulated is simply a gulping movement of the jaws which helps to plaster the sticky carbohydrates into the crevices of the teeth, in which the bacteria—incubated and multiplied by similar previous meals—are lying in readiness for the production of further quantities of acid destined to decalcify the enamel of the teeth.

Hitherto we have learnt that bacteria are to be regarded as the exciting cause of caries; but when we consider the fact that it is only when carbohydrates are made to lodge unduly with the ever-present bacteria that acid is produced, we might almost be tempted to say that it is the carbohydrate which is the exciting cause. Moreover, if no carbohydrate lodged in the mouth, the bacteria which are best adapted for that medium would either be starved out or be present only in innocuous numbers, while the bacteria which find their natural food in the albuminous desquamated epithelium and other proteid substances may actually be antagonistic to the presence of acid-forming bacteria. Indeed, the normal bacterial flora may, under proper dietetic conditions, be valuable scavengers, liquefying the albuminous matter which otherwise would lodge unduly, and give rise to an unhygienic state of the mouth. Still keeping to the ordinary view that the bacteria are to be regarded as the exciting cause of caries, we recognize that the foods control the bacteria, both in number and kind.

First, fibrous foods, which stimulate efficient mastication, clean the bacteria out of the mouth altogether to a great extent. Secondly, fibrous foods, which by stimulating mastication remove sticky carbohydrates, remove also the nutriment which is most necessary for the development of bacteria, most active in a carbohydrate medium—that is (*a*) acid-forming bacteria; and (*b*) bacteria which give rise to viscous fermentation.

This latter class of bacteria is often overlooked, but inasmuch as it is only when the acid formed by bacteria is protected from neutralization or dilution with the saliva that decalcification of the enamel results, it is obvious that viscous fermentation should not be allowed, much less encouraged, in the mouth. Thus, therefore, cane sugar, when not well diluted, or eaten with something of a detergent nature may possibly, under certain circumstances, be more destructive to the teeth than the more directly fermentable sugars. All these deleterious bacteria and fermentations can fortunately be controlled by the foodstuffs.

It has now to be considered how this can be done in actual practice.

With regard to the diet of children before they have teeth I shall say nothing: we are all agreed that this should be mother's milk. When the child has begun to get a few teeth, and the period has arrived for commencing to supplement the milk diet with something solid, what has to be done? To restrict the child with teeth to milk, and bread soaked in milk, would just be the commencement of evil ways. Gulping food without insalivation would be the first result, functionless incisors the next, carbohydrate fermentation about the teeth would follow; tenderness of the teeth from want of use would naturally come on at a rather later date. So-called teething troubles would indeed have set in. No; the correct transition from the mother's breast, out of which liquid was sucked, is to equally solid food, bread, or toasted bread and butter, with a superficial area, if you like, as large as the mother's breast; from this the infant gnaws and sucks in a somewhat similar manner to that in which it sucked its mother's breast. The thorough insalivation and more or less complete liquefaction of the bread prepares it for the infant's stomach. The child knows that it has something solid in its mouth; it is not deceived, as it is when "bread well soaked in milk" is given to it. It therefore does not tend to choke and splutter. It has not large quantities of uninsalivated starch lying in its stomach ready to undergo unnatural fermentation. Its teeth and gums have been brushed by the gnawing, and indeed a smile of pleasant wonder at the simple and pleasurable transition is wont to come over the little infant's face. By the time a quarter or half a slice of toast is thus consumed—leaving out of account what falls on the floor—the milk which it has yet to be allowed is in readiness, and the shrieking which but for the half slice of bread would have arisen is averted.

Gradually the number of times this augmentation of the meal may be allowed is increased until further additions or variations, for example, rusks or bread rolls, if thought desirable, may be given; although bread and toast and butter to supplement the mother's or the diluted cow's milk is for a month or two almost all that is desirable.

In a short time—say, about the thirteenth month—the molar teeth make their appearance; this is a signal that solid food—for example, bread or toast, and well-baked milk puddings—may be eaten, not, as before, merely as a slight addition to the milk diet, but as a distinct and considerable part of it. And as it is desirable to diminish the amount of and concentration of the milk as the child grows older, so, correspondingly, may a little simply boiled fish or other plain albuminous food be added to the diet. Still later the second molars make their appearance, and the full temporary set of teeth is in position and ought to be in full functional activity. No more milk is then necessary; it may even be seen, both from a consideration of the full set of teeth or from the habits of primitive men and animals, that further milk is not really necessary; in fact, it is unnatural. Some form of milk may, however, be given or risked, perhaps, one should say, after this age, because by this time the child is able to eat practically anything, and, unless it is forced to drink milk by the pint daily, will no doubt be able to dispose of the clots of casein which are so liable to form in the stomach and undergo vigorous fermentation.

After the child has reached the age of 2 or 2½ it has a complete set of temporary teeth, and for its size and requirements as efficient a masticatory apparatus as any man of 30. The meals should then be arranged approximately on the adult plan—that is to say, three meals a day, with four and a half to five hours' interval between. A long interval between meals is what should be aimed at for several reasons; the only one to which I will refer is that the longer the time that elapses from the taking the previous meal, the more certain is the mouth to be free from decomposing foodstuffs, and consequently the more perfectly hygienic and prepared for more food it will be.

The meals should be arranged in such a way that there will be in each a sufficiency of hard food to stimulate the pleasurable activity of efficient mastication, together with its excellent concomitant effects on gums, jaws, teeth, and alimentary canal generally; and it should be terminated with foods of a detergent nature, so that sticky carbohydrates will be cleansed from the teeth and the mouth be in a hygienic condition. That is to say, it must not terminate with sticky carbohydrates, such as bread and marmalade or jam, stewed fruit, cake or sweet biscuits; much less should any between meals be made of these substances, especially when consumed with milk. Nor should sweets be consumed between meals; when they are taken, they must form part of the meal, and be followed by raw fruit.

To indicate more precisely the type of meals which prevent and cause dental caries, the following may be taken as illustrations: First, we shall refer to the kind of meals which do not produce caries:

Breakfast: Fish, bacon, toast and butter, coffee and tea.
Luncheon: Meat or poultry, potatoes, salad, well-baked milk pudding, fresh fruit, water.
Supper: Rusks, toast, or bread rolls and butter, chicken or fish, water or milk and water or tea, fresh fruit.

Secondly, we may outline the kind of meals which induce dental caries:

Breakfast: Milk, porridge and milk, bread and marmalade, then, perhaps, a supplementary breakfast a few hours after of a glass of milk and a sweet biscuit.
Luncheon: Mashed potatoes and gravy, milk and milk pudding.
Supper: Bread soaked in milk, or bread and jam, cocoa and cake, and a supplementary supper on going to bed of a glass of milk and a biscuit, or just "a tiny piece of chocolate."

Do not think that I am advocating an abandonment of the pap system of feeding children because of an exclusive regard for the hygiene of the mouth. It is true that we were originally led to suspect the wisdom of the pap system by a study of the terrible state that the mouth got into under it. We have always considered the hygiene of the alimentary canal all the way along. And now we have our view not only corroborated but also added to by some of the leading authorities of the medical profession. Thus Dr. G. A. Sutherland,[1] in referring to the treatment of the diseases of the alimentary canal in children, says that the real risk of tuberculous infection lies in the unhealthy condition of the alimentary canal. He further says that the natural tendency is to put tuberculous cases on a sloppy diet—milk, bread and milk, and pudding. But he points out that "experience shows that this is the worse possible form of treatment." From what I hear, it would appear that several other children's specialists have made a right-about-wheel from the pap system, but it is unfortunate that the many publications which still advocate the slop-diet system have not been suppressed, for the harm that the system is doing not only to the teeth but also to the alimentary canal and body generally is quite incalculable. I do not think there is any reason for believing that the slop-diet system which was so universally advocated is less dangerous to the alimentary canal than it is to the teeth. We have with us, however, a physician, Dr. Harry Campbell, who has made probably the most philosophical contributions of recent years to the science of dietetics; he may, perhaps, be kind enough to indicate to us how far this is true.

In conclusion, it should be noted that hitherto the authorities on dietetics have neglected considering the value of diet from the point of view of the hygiene of the mouth. The nutritive value of every foodstuff has been tabulated, but the question whether the food lodges and ferments in the mouth, or by lodging stimulates the growth of obnoxious bacteria, together with their acids

and toxins, seems never to have been given a thought. Yet the mouth is the entrance portal of disease; and what chance has a child with an unhealthy mouth when persistently supplied with unhygienic food and poisoned with decomposing products? Is it of any great consequence how nutritious the food may be if the teeth and alimentary canal are ruined? It should surely be recognized that the mouth and alimentary canal must be kept in a hygienic state, and if food which contains a considerable proportion of innutritious matter is required to do this, then such relatively innutritious food must be given. It is useless forcing nutritious food into an unhygienic alimentary canal. At the present time, however, when a child is suffering from lack of appetite and emaciation resulting from the unhygienic state of its mouth and teeth, it is usually given highly nutritious food without the slightest regard to whether such food will restore the mouth to a state of reasonable cleanliness and the alimentary canal to a hygienic state. And, as if to add insult to injury, it is frequently ordered malted foods and medicated syrups three times a day after meals!

The amount of disease and suffering which could easily be prevented by the dietetic régime which has been proved to keep the teeth free from caries is simply incalculable, and it would certainly appear that the impending triumph of medicine not only in the prevention but in treatment of disease is the putting in practice of the dietetic principles which we have indicated. In the past the great advances in medical sciences have generally resulted from the advances of correlated sciences; and I venture to think that the principles of dietetics suggested by a study of the food in relation to the teeth by the dental profession will yet be found to give rise to the greatest triumph over disease that has ever been recorded in the annals of medicine.

REFERENCE.

[1] *The Treatment of Diseases in Children*, p. 110.

DISCUSSION.

Dr. HARRY CAMPBELL (London) pointed out that, considered in all in its practical bearings, much the most important subject engaging the attention of this Annual Meeting was the one under discussion. The condition of the teeth of the inhabitants of these isles was a national disgrace. There were upwards of 200 million decayed teeth in this country, and at least as many socket abscesses (pyorrhoea alveolaris), in addition to several millions of root abscesses. The sum total of misery due to this state of things in the shape of pain, unsightliness, foul breath, blood poisoning, and indigestion (with its manifold secondary evils, including gastric and duodenal ulcer, and even cancer), was incalculable. Seeing that almost the whole of this was preventable by the adoption of simple common-sense measures, it could not be contended that he had exaggerated the importance of the discussion. That the chief, wellnigh the sole cause of dental disease was dietetic, was as clear to him as anything well could be. The factor of hereditary predisposition was negligible; dental disease was essentially acquired. In animals living under natural conditions, and in primitive man (for example, the primitive Australian) dental disease was almost unknown; but if a wild animal, or if a primitive man, were brought up on an unsuitable diet it at once appeared, in spite of the clean ancestral chart. He had seen abundant dental disease in civilized savages and in domesticated anthropoid apes. A great cause of dental disease was non-use of the teeth. The inhabitants of these isles sucked their food rather than chewed it, because their starchy food was almost entirely puffy. The only effective way of coping with the evil was preventive—by an alteration in dietetic habits.

Mr. F. J. BENNETT (London) thought that in a general way Dr. Wallace's contentions were established, but that there were important reservations. The great effect of efficient mastication was to wear away fissures, and also to cause enlargement of the dental arch. He also thought the effect of tartar in producing caries was very limited. There were countless millions of people who lived on soft food who had no caries, and whose teeth were regular. He thought also that the absence of lime salts tended to rickets, and so to the production of irregularities. The effect of acid juices on the teeth was to decalcify enamel, as was shown by a specimen which Mr. Bennett exhibited to the meeting.

Dr. WHEATLEY (M.O.H. Shropshire) thought the necessity for hard food, particularly in early years, to cause a proper development of the jaws and teeth and their regular arrangement, might be taken as proved, and as also the necessity throughout life of a certain amount of hard, cleansing food to keep the gums healthy and the teeth in a cleanly state. It might also be taken as proved that the actual destruction of the tooth was caused by the action of acids formed from the fermentation of starch and sugar. If these were facts, it should be quite easy to draw up some simple rules such as, if carried out, would practically prevent this condition. He had endeavoured to draw up such rules, and had embodied them in his report as a school medical officer for the county of Shropshire. He had also recommended his authority to communicate this section of his report to all medical men and dentists in the county, and ask their opinion as to the best means of preventing dental caries. In this way it was hoped to stimulate interest in the profession and possibly arrive at something like unanimity. He had also recommended that lectures on this subject should be given to school teachers, midwives, and district nurses. It might be said that it was impossible to reform the diet of a people by any efforts of this kind. What had been done and was still being done with regard to the improvement of infant feeding, refuted this contention, but in any case these facts should be brought to the knowledge of the people and the chance of benefiting by them be given them. It was perfectly certain that once the well-to-do classes thoroughly understood that this disgusting and disabling condition of teeth could be prevented by simple rules of dietary, a reform would quickly follow. Any attempt to deal with dental caries by dentistry alone would not, however successful, be a real benefit to the race. The greatest triumph of preventive medicine would be the prevention of dental caries and all the evils which result from the same cause. It would certainly be of very great help to this movement if this Section could make some definite pronouncement on the subject, and if some competent and authoritative body could be induced to set out briefly the rules that should be observed for the preservation of teeth in a sound condition. The question might well at the next meeting of the Association be discussed along with the Preventive Medicine Section.

Mr. KENNETH GOADBY (London) agreed with Dr. H. Campbell's general conclusion that inefficient mastication was mainly the cause of dental disease, classing together under that heading caries and alveolar pyorrhoea. He had observed, however, that among the natives in the seamen's hospitals, and also in the monkeys in the Zoological Gardens, dental caries was uncommon and alveolar disease common; moreover, in Mr. J. F. Colyer's specimens of bus horses alveolar disease was directly caused by the impaction of fibrous foods in the interdental spaces. Certainly, in the speaker's experience, among other factors relating to the bacteriology of dental caries, the growth of certain bacteria to the exclusion of others was a point to be considered.

Dr. SIM WALLACE, in reply, said that, with regard to Mr. Bennett's criticism, he did not refer to some of the points simply because there was not time. Thus, with regard to the wearing down of the cusps in helping to bring about a regular set of teeth, he had introduced this theory in his book on the irregularity of the teeth, and had no wish to abandon it. With regard to rice-eating people, it might be said that they cooked and ate the rice in such a way that the mouth was left much cleaner than when the rice was mixed with sugar and milk. He could not agree that tartar was useful. It might not do much harm, but it was much better when the dietetic régime was such as would prevent it. Tartar predisposed to dental caries by inducing recession of the gums, and so at a later date induced stagnation of the food. Deficiency of lime salts in the food did not seem to have anything to do with the prevalence of dental caries. He believed the Esquimaux, whose food contained but little lime, were remarkably exempt from caries.

CARE OF THE MOUTH DURING GENERAL DISORDERS.

By HECTOR MACKENZIE, M.D., F.R.C.P.,
Physician to St. Thomas's Hospital and to the Hospital for Consumption, Brompton.

DENTISTRY has in the course of years become one of the most highly specialized branches of the medical profession. No speciality is more necessary than that which concerns itself with the care of the teeth. But specialism is apt to have its drawbacks, its disadvantages, even we may say its dangers, and the particular drawback to the highly specialized branch of medicine called dentistry is the amount of indifference and ignorance prevailing among other branches of the profession on all matters relating to diseases of the teeth. Considering the important effects which the state of the teeth has on the health of the body, and, again, the influence which states of the body have on the condition of the teeth, I hold that an elementary knowledge of diseases of the teeth should be imparted to all medical students, and should be required of them when they present themselves for their final examinations. The dental surgeon is expected to have a knowledge of general medicine and surgery, and is encouraged to make himself fully qualified in these subjects, but no inducement is given to the ordinary student to acquire the most elementary knowledge of the teeth and their diseases. I cannot remember that as a student I was ever taught anything about the teeth, or about their care.

That things are not very much better nowadays I am quite convinced, if I may judge from the fact that to most of my patients it seems a novelty for a doctor to take any interest in the state of their teeth.

For my own part, I do what I can to get my students to study the teeth and to consider the relations of their diseases to the general health. It is because I am fully persuaded of the importance of sound teeth and sound gums to a sound state of general health that I welcomed the opportunity I am to-day afforded by the kindness of your officers of taking part in this discussion. I cannot pretend to have any special qualifications for addressing you on the subject of the care of the mouth during general disorders in relation to the prevention of dental caries, except that, as physician to two large hospitals, I have had exceptional opportunities of studying the matter.

Caries of the teeth is admittedly the most common pathological change to which the human body is liable. I am not able to bring forward any statistics showing the relation between dental caries and general illnesses, nor do I think the time and trouble involved in the preparation of such statistics would be in any way adequately repaid by the resulting information. It is difficult to watch the gradual development of dental caries, but we know its causes, and we know how it is that general diseases contribute to it. I need not dwell on the lamentable prevalence of dental caries among patients of the lower classes. Among hospital medical patients it is almost unknown to find a mouth which has no unhealthy teeth.

Now, I believe that dental caries is a preventable disease, and that it never arises without neglect of oral hygiene. The disease is generally recognized as due to stagnation of foodstuffs or buccal secretions in the pits of the teeth, or the interstices between them, and the acid decomposition of these, due to the action of micro-organisms.

We may say, no stagnation of particles of food or secretions, no development of caries. The micro-organisms play a necessary part; but stagnation comes first; the micro-organisms come in afterwards.

Now, almost all persons of the lower classes habitually neglect the care of their teeth while they are in health. Few, if any, of the men or children use a toothbrush at all, and although some of the women make a limited use of it, it is seldom more than once a day. Neglect, however, is by no means limited to the lower classes, and on that it is unnecessary for me to enlarge here. It is, however, during illness that neglect of oral hygiene becomes most general and most serious. In this matter I cannot but think the fault to a great extent lies at the door of the medical profession. Take the case of fevers; read the description of these illnesses in the medical text-books, and you find sordes, filth which, from neglect, has been allowed to collect on the teeth and lips, mentioned as a usual symptom of the more severe cases. Sordes can only be deposited when allowed by the neglect of nursing. In the case of chronic illnesses the patient neglects keeping the teeth clean because it is a trouble, because he has never learnt to do so in health, or because he does not recognize its importance for his general health. In the case of acute illness he is often too ill to attend to the matter himself; in health, the process of mastication, the movements of the tongue, of the lips, and of the cheeks, help to clear away the food débris. In serious illness there is little or no voluntary effort to remove particles of food. The nature of the food in serious illness is usually such that little or no mastication is needed. The tongue becomes more and more coated, while the teeth become covered with food particles and the buccal secretions. Both need the constant attention of the nurse. When the mouth is not attended to, all those conditions are present in the highest degree which make for putrefactive changes in the stagnated deposits. The putrefactive changes lead to the formation of lactic and other acids which dissolve the lime salts, and thus prepares the way for a further attack of the micro-organisms on the softened enamel and the underlying dentine.

With regard to the measures which should be adopted in acute and chronic illnesses in order to prevent dental caries, it is for you rather than for me to lay down the law. The important matter is keeping the mouth, and in particular keeping the surfaces of the teeth, clean. If the patient is well enough to do so, he should use the toothbrush and rinse the mouth out every time he takes food. When the patient becomes too ill to use the toothbrush, as in typhoid fever or pneumonia, then the duty of cleansing the teeth devolves upon the nurse. After feeding the patient the nurse must cleanse the teeth by rubbing them with pieces of rag or lint moistened with such a mild antiseptic as that about to be mentioned, and an endeavour must be made to get the patient to rinse the mouth out as well, so as to prevent any particles of food from adhering to the teeth. To get at the molar teeth the lint should be placed in the clasp of a sponge-holder. The use of some mild antiseptic as a mouth-wash is indicated. A satisfactory mouth-wash is that made by dissolving 6 grains of phenol and 5 grains of citric acid in an ounce of water, and mixing a teaspoonful of the solution with half a tumblerful of water. A more elegant preparation, when the expense is not important, may be made by using eau de Cologne as the solvent instead of water. When the patient is unable to rinse his mouth out himself, the nurse should turn his head on one side and gently syringe the mouth with the diluted solution.

In cases of chronic illness where carious teeth are already present, the dental surgeon must decide what is to be done; that is outside the province of the physician. In hospital practice, in most chronic illnesses, a large proportion of the teeth are already carious and have to be extracted. When artificial teeth are worn it is often found that the plates have been fitted over diseased stumps, which have to be removed to get the mouth clean. It is beyond the scope of this discussion to refer to the subject of pyorrhoea, but I believe that pyorrhoea in its causation is closely allied to caries. Both depend on stagnation of food and putrefactive changes through the influence of micro-organisms. In the one case, the stagnation occurs on the surfaces of the teeth, in the other, between the teeth and the gums.

It is also beyond the scope of this discussion to refer to the importance of attention to oral hygiene in relation to the treatment of general diseases, such as chronic phthisis, anaemia, rheumatic affections, and diseases of the stomach and intestines. Our attempts to restore the invalid to health will often be frustrated until we have succeeded in getting the mouth into a more or less healthy condition. Lowered vitality favours the vegetation of micro-organisms in the mouth, these attack the teeth, and the diseased teeth still further lower the vitality, so that a vicious circle is established. Treatment and preventive measures attain the same end. The efforts for the prevention of caries will serve equally well to prevent those ill effects to the general system which proceed from unhealthy conditions of teeth. The dental surgeon and medical practitioner alike must strive after the ideal which, to vary an old saying should be, *dens sanus in sano corpore.*

DISCUSSION.

Dr. WHEATLEY (M.O.H. Shropshire) pointed out that any method of preventing dental caries by elaborate methods of cleaning, such as the use of silk thread between the teeth after each meal, were absolutely impracticable with regard to the masses of the people. If it were possible to get rid of dental caries by altering the character of the people's food, there was some hope; but if it was necessary to rely upon elaborate methods of cleaning, prevention of caries was hopeless.

Dr. SIM WALLACE (London) said he must disagree with much that Dr. H. Mackenzie had said, because he seemed to him to have missed the point. He had not indicated that medical men should be taught what types of diet gave rise to cleanliness of the mouth; in fact, he had even suggested that soft diet was not harmful. It was extremely difficult to brush the teeth effectually; indeed, it was practically impossible to brush between the teeth with a toothbrush. Those whom he had come across who attempted to chew soft food, including milk, were by no means exempt from caries. Although artificial cleansing might do some little good, it was liable to divert attention from the all-important fact, namely, that the milk diet so usually adopted or recommended by medical men for invalids or people suffering from constitutional disease was the chief cause of the association of dental caries and constitutional disease.

Dr. SIDNEY DAVIES (M.O.H. Woolwich) said the British nation, as a race, was becoming too well fed, especially as regards the superabundance of soft pretriturated and predigested foods. The difficulty was to find a suitable diet of hard food, and he had come to the Section to gain information as to what articles of food to recommend. He was doing what little he practically could; every house in Woolwich was provided with a leaflet informing parents that children's first permanent molar came through at the age of 6, and that teeth should be cleansed every night from that age.

Mr. W. A. MAGGS (London) said he was glad reference had been made to the advisability of teaching dental surgery to medical students, and he hoped it would in the future be included in the curriculum and examinations of the Conjoint Board and of the universities. Medical students had more or less ignored dentistry, mainly for two reasons, one being the large number of compulsory subjects included in the curriculum, and the other that patients with diseases of the teeth were referred for treatment to the dentist. He expressed the opinion that decay of the teeth during acute illness was not entirely due to want of cleanliness on the part of the patient or nurse. He found that in spite of every precaution decay occurred during acute specific fevers, in extreme anaemia, in rheumatic fever, in acute phthisis, and in other diseases. The secretions of the mouth during acute illnesses were often abnormal, perverted, and acid in reaction. It was difficult to counteract these conditions; and personally he considered the use of a toothbrush and the free rinsing of the mouth with tepid water were the best ways of getting rid of the débris of the food, and so preventing decay of the teeth.

Mr. HOPEWELL-SMITH (London) welcomed Dr. Hector Mackenzie's paper, and wished to emphasize his remarks on the evil done by the retention of septic roots under artificial dentures. Regarding the question from the point of view of prevention of dental caries in ordinary mouth baths, one ought always to ascertain the character of the saliva, and if it was acid prescribe an alkaline one, and if alkaline an acid one. It was probable that toothpowders predisposed to the onset of periodontal diseases; and it was very important to prescribe what was indicated. On visiting a provincial hospital he had found the mouths of patients in the wards in a filthy condition; it was also true that patients were admitted to various sanatoriums in the country for treatment of their bodies without any care whatever having been paid to the welfare of their teeth.

THE INFLUENCE OF CLIMATE ON DENTAL CARIES.

By A. S. UNDERWOOD,
Professor of Dental Surgery, King's College.

THE first step towards the prevention of dental caries must be the identification of the conditions that favour the disease. These conditions must necessarily be of a twofold character: (1) Anything which tends to weaken the natural antibacterial defence of the tooth itself; (2) anything which tends to increase the power and activity of the invading bacterial army.

It appeared to me some time ago that a careful examination of an extended series of skulls of various races and various epochs might throw some light upon this inquiry. The immunity of certain races and the liability of others taken in conjunction with what is known of their diet, surroundings, and mode of life, might result in useful suggestions.

About two years ago I commenced a series of investigations (making careful notes) of the skulls in accessible collections such as the Royal College of Surgeons and the Natural History Museum, and, without burdening you with numbers and figures, all of which will be published later, I propose to give a summary of my results so far to this meeting. I started with strong expectations of finding certain definite results, and, as is so often the case, I did not find at least what I expected.

In the hot belt of the earth, including India, Africa, and Southern China, bathing and washing are natural habits because of the heat, and rinsing the mouth after meals, and the use of sticks, toothpowder, ashes, and salt for cleansing the mouth is almost universal among the natives; while the food is largely rice, and no alcohol is used. In all of them caries is so rare that to all intents and purposes the natives may be regarded as immune. In the Arctic regions the Esquimaux never wash or clean their mouths (Peary), eat seal, walrus, whale, reindeer, fish, and seafowl, and drink alcohol. A very large series of Esquimaux skulls show the practical immunity among the natives. In the temperate regions, among the Australian natives, there is the same immunity.

Clearly cleanliness or uncleanliness by itself is not a sufficient explanation, and climate *per se* has little or nothing to do with the question. Immune teeth among natives are always worn down, and the rare cases of caries are always in cheek teeth.

As far as skulls throw a light on the question, I have no doubt that what is called civilization is attended by a rapid increase of caries.

I used to think that the talked-of increase in the prevalence of caries of late years really meant that nowadays it was more widely detected and reported, but this illusion is now dispelled. A series of English, Scottish, and Welsh skulls of 100 to 150 years old which I examined I found, though not immune, fairly free from caries. Most of these were skulls of poor people, *post-mortem* and dissecting-room subjects, with the exception of a few wealthy murderers.

Among ancient civilizations, I found an appreciable amount of caries among ancient Egyptians. Of ancient skulls I have not finished my inquiry, and therefore have not seen so many specimens of Greek and Roman skulls, but caries was certainly not unknown among them.

In modern times people vary considerably in their liability. M. Magitot published in 1867 some very interesting investigations. He concluded that Caucasian races were specially liable; that mixed races were more liable than pure; that transplanted races were specially liable—I do not agree; that aborigines of America, Mexico, Peru, and Patagonia were immune; also that Australia, Madagascar, New Caledonia, Malays, and Javanese Island folk were specially immune.

A map of France, 1867, drawn up so as to show the relative proportions in various areas of persons exempted from military service on account of caries shows in Finisterre 60 exempts out of 547,000 conscripts, and in Eure 5,014 exempts out of 450,000 men of like age. Normandy and the openings of Garonne, Loire, Dordogne, and Seine are the worst districts.

No single cause explains this fact. Food has little to do with it. In Normandy (the worst district) and in

Brittany (the best) the inhabitants eat and drink practically the same things.

Rivers have also no effect. The Seine and Garonne districts are very bad, while the Rhone district is comparatively immune. Nor can seaside, elevation, climate, food, or wealth be shown to have much to do with it when considered apart.

As for racial distribution, the Celts, small dark folk, have good teeth, while the Kimric races, large blonde folk, have bad teeth.

Poverty and wealth seem no explanation in Great Britain to-day. Town-reared and country-bred people are all equally liable (Welsh mountains and London streets).

Conclusions.

The mischief, as far as weakening the tooth defences is concerned, is to a great extent done before the diet of the individual has passed beyond the milk stage.

Although horse, cow, and goat milk contain much more lime than human milk, and although many artificial foods are ideal in the desirability of their constituents, there is no doubt they are not assimilated nearly so well as mother's milk; it is not what goes into the baby's mouth but what goes into its blood that counts.

Maternal neglect, which is a product of high civilization, is an important factor. Even where the child is breast-fed, Sutherland states that worry and anxiety render the milk unsuitable; and worry and anxiety, the strenuous life, high pressure, luxury, as much as want and distress, are evils attendant upon civilization.

Then there is the wholesale preservation of the physically unfit, which is also a practice pertaining to high civilizations.

My general conclusions are that the prevention of dental caries can best be attained by: (1) A return as far as possible to the simpler life; (2) a return as far as possible to maternal breast-feeding; (3) a universal habit from early childhood of cleansing and rinsing the mouth after every meal, and especially at bedtime.

DISCUSSION.

Mr. F. J. BENNETT (London) thought the simple diet was of importance, as it gave the oral secretions a simpler task in acting on the food.

Mr. W. A. MAGGS (London) agreed that the causation of dental decay was a complex problem, and doubted if diet alone would prevent it. Persons taking every care in cleansing their teeth and in chewing their food suffered from caries, whilst others, entirely disregarding these matters, escaped. Immunity was, in his opinion, largely due to the secretions of the mouth being normal, and free in amount. It was not always correct to say that attrition of the teeth was due to coarse food. The wearing down of the teeth in uncivilized and civilized races was frequently found to be due to an edge-to-edge "bite"—a type of dentition associated with primitive man, and when seen nowadays indicative of sound teeth and virility. Dr. Sim Wallace advocated eating an apple at the end of a meal for the purpose of removing particles of food from the interstices of the teeth. Such a practice was also beneficial in acting as a gentle laxative, and an apple taken daily after breakfast promoted intestinal peristalsis. In the western counties—Somerset, Dorset, and Devon—dental decay was very prevalent amongst the rural population, and was due to drinking the common beverage—cider.

Dr. WHEATLEY (M.O.H. Shropshire) thought the question of the importance of hardness of water was one that could be easily cleared up. Certainly in the rural districts of Shropshire, where the water was mostly very hard, the teeth were bad. He had heard no evidence whatever that soft water was a cause of dental caries.

Professor G. ELLIOT SMITH said that during the last ten years his assistants (Drs. Wood Jones and Derry) and himself examined and made notes on more than 15,000 ancient Egyptian and Nubian crania, representing every historical (and prehistoric) period, and had studied the evidences of dental disease. In predynastic times (before 3400 B.C.), in early dynastic times (until 2700 B.C.) in Egypt, and until the time of the eighteenth dynasty (*circa* 1500) in Nubia, dental caries was so extremely rare as to be practically non-existent; yet alveolar abscesses often occurred, because the large quantities of sand contained in the bread and other foods caused early and extreme wearing-down of the teeth, and the infection of the exposed pulp cavities with septic material led to alveolar abscess formation. At the time of the Pyramid builders of Lower Egypt (*circa* 2700 B.C.) dental caries and tartar formation became suddenly so common, that amongst the remains of 500 (mostly aristocratic) people of this date that we examined, only about 50 were free from caries, and the jaws of most of them were riddled with abscess cavities. Amongst the well-to-do Egyptians caries had been common ever since then; and in later times it gradually spread to the lower classes.

Dr. C. MUTHU said that behind all causes, such as errors in diet, artificial feeding of infants, etc., the conditions brought in by the present civilization was the chief cause of disease of teeth. So long as the Indians lived their simple, primitive life their teeth were excellent, but as soon as they came into contact with European civilization and adopted Western modes of living their teeth went wrong. Primitive life meant not only eating simple food, but bathing every morning, washing the teeth before and after every meal, morning worship which brought calm and peace of mind and body, early retirement to bed and early rising—in fact, it meant living near the heart of nature. The civilized man had lost the peace of mind. The mind influenced the body. If health meant harmony of various elements of man, disease was caused by disturbance in the relation between body, mind, and spirit—including the disease of teeth. So that behind bad water, bad diet, and behind these shallow causes lay the root cause of a new environment brought on by the modern conditions of Western civilization.

Dr. CYRIL HOWKINS (Birmingham) stated that from his personal observations on the semi-civilized natives of South Africa, they had exceedingly good teeth. He was unable to understand why the Jews had such excellent teeth as a rule, unless it was from the fact that they rarely married any one save of their own race. He had often wondered if one result of the marriage of individuals from two different races was that the teeth of the offspring were inferior to those of the parents, even if the fact that irregularities of the position which commonly occurred from these marriages was put on one side.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

GUTTA-PERCHA TISSUE FOR DRESSING WOUNDS.

A GOOD dressing for a clean wound is that which shall ensure the maximum of cleanliness and rest for the injured part.

Our efforts to obtain cleanliness most often war against rest in these two ways: (1) A dressing either previously impregnated with or at the time wrung out of some chemical disinfectant acts as an irritant to the edges of the wound. (2) Our vigilance leads us to frequent dressings to see that the wound is in good condition.

Gutta-percha tissue may be sterilized by washing in methylated spirit. The dressing having been applied, the condition of the stitches and wound edges may be observed through the dressing without disturbing it.

The method I observe is as follows: (*a*) Cut off a piece of gutta-percha tissue of the size required, and lay it in a tray of spirit. (*b*) Disinfect the hands, cleanse the wound, put in stitches, and arrest bleeding by pressure of a swab wrung out of spirit. (*c*) Lift the gutta-percha dressing from the spirit by one corner with forceps, and allow the spirit to drain off. (*d*) Lay the dressing upon the wound, and apply a pad of wool and bandage.

I then see the patient at the beginning of the third day, remove the bandage and wool, and note the appearance of the wound; if the wound remain clean, it is inspected through the dressing on the fifth day, and the dressing

remains undisturbed until the removal of stitches on the eighth to tenth day, when a similar dressing is applied and kept in place till cicatrization is sufficiently established for there to be no danger of infection.

I am obtaining more satisfactory results by this means than by any other dressing I have yet used, and believe it well suited to general practitioners' needs.

J. R. RIGDEN TRIST, M.R.C.S.Eng., L.R.C.P.Lond.
London, S.W.

RECOVERY FROM ARYLARSONATE POISONING.

IN the JOURNAL of March 19th, p. 725, you published some notes of mine on a case of arylarsonate poisoning.

I now wish to record the recovery of the same. On seeing my letter, Mr. Charles Wray kindly wrote asking me to try the effect of administering large quantities of water daily, as well as electricity to the temples, of a strength sufficient to produce subjective flashes of light.

Vision was slowly improving prior to this treatment, but it has most certainly proved of the utmost value. The patient took for many weeks 90 to 100 oz. of fluid daily, and for ten weeks, almost daily (Sundays excepted) I applied for four to six minutes a constant current of from 3 to 10 milliampères, with an electrode on each temple. I usually reversed the current sharply once or twice, when a flash of light (of a bluish colour) was generally perceived.

As the case progressed the stronger current was less well borne and a reversal of the weaker current produced results which at first only followed with the stronger.

The patient's vision steadily improved, and he can now see almost quite as well as at the end of last year. He has put on some weight and is altogether doing very well.

Carnsore, Monkstown, co. Dub R. LYNN HEARD.

TREATMENT OF THE SECONDARY INFECTIONS IN PULMONARY TUBERCULOSIS.

DURING ten years of sanatorium experience it has often occurred to me that the tubercle bacillus is, in itself, not such a dangerous organism as generally supposed, and that if left alone without the introduction of chemical tuberculin (C.T.)—that is, that manufactured in laboratories—it tends in many cases to undergo dissolution. The mixed infections are responsible for the ills of tuberculous disease. This has long been recognized in the case of the lungs, but I am unaware that the custom exists to treat mixed infections in the same systematic and routine manner as tuberculin is given. Tuberculin is uncertain in its action, and therefore dangerous, and this is mainly due to the fact that tuberculous patients manufacture their own tuberculin. The dosage of natural tuberculin (N.T.)—that is, that manufactured in the body—can be regulated by exercise and rest; therefore, in any individual case the grades from complete rest in bed to full exercise are gone through according to the dose of N.T. absorbed, as shown by the temperature. When C.T. is given consideration must also be given to the fact that the patient is dosing himself with his own tuberculin, so that a double dose of tuberculin may be avoided.

In pulmonary tuberculosis the lungs are open to mixed infection from the external air, and this mixed infection causes the breaking down of the tuberculous deposit. *Post-mortem* examinations tend to show that a pure tuberculous deposit becomes encapsuled and rendered inactive.

Holding, therefore, the opinion that death from pulmonary tuberculosis is nearly always due to mixed infection, I now treat such cases by ignoring the tubercle bacillus and devote my attention to clearing out the mixed infections.

My method is to obtain the early morning sputum after the patient has used an antiseptic mouth-wash. I then grow a culture of the sputum, and stain it by Gram's method. I treat the organism that is in excess of any other. If a streptococcus, I give 25 c.cm. of antistreptococcus serum (polyvalent) in a little saline solution by the mouth one hour before breakfast. If staphylococci are present, I give the same amount of antistaphylococcus serum (polyvalent). After a week I grow another culture, and again give the corresponding serum to the organism present. In time the mixed infections disappear and only a pure tuberculous infection remains, which tends to get well of itself. If the right serum is given both the negative and positive phases occur, the temperature is under control, and the improved condition of the patient is manifest. I claim for my method (1) that it is simple, rational, and within the reach of all medical men; (2) that the method does no harm to the patient, there are no serious risks attached to the administration of serum, and the results show the efficacy of the method I have adopted. J. PENN MILTON, M.R.C.S., L.R.C.P.Lond.
Udal Torre Sanatorium, Yelverton, S. Devon.

Reports
ON
MEDICAL AND SURGICAL PRACTICE IN THE HOSPITALS AND ASYLUMS OF THE BRITISH EMPIRE.

LIVERPOOL WORKHOUSE HOSPITAL.

SERUM TREATMENT OF DISEASE.

(Two Cases under the care of WILLIAM ALEXANDER, F.R.C.S.)

[Reported by Dr. G. FISMER, House-Surgeon.]

CASE I.—TETANUS.

THE patient in the following case, a man aged 22, was admitted at 8 p.m. on April 8th, 1910, complaining of stiffness of, and pain in, his body and jaws, to a less extent in his limbs, which had begun some three or four days previously. He had been working on a farm for some weeks, and had received at different times sundry superficial wounds, mostly on his right hand.

Condition on Admission.

His temperature was 97°, pulse 60, and respirations 20. There was tonic contraction of the muscles of the jaw, sufficient to prevent him separating his teeth more than about ¼ in. The palpebral openings were narrow, and his eyebrows drawn up, his forehead wrinkled, and well-marked risus sardonicus. The neck and back muscles were also rigid, and the anterior abdominal wall board-like and painful. Rigidity and pain were less marked in the lower limbs, whilst in the upper limbs he only complained of slight stiffness in the shoulders. On the right hand there were traces of numerous superficial injuries; the majority of them had healed almost completely; there was no wound of any size, nor any suppurating sore.

Diagnosis.

A diagnosis of tetanus was made. How long it had been incubating was impossible to decide, owing to the varying dates at which the wounds in the hand had been received.

There being no tetanus antitoxin to hand, he was given chloral gr. xx four hourly, and slept fairly well.

Treatment.

Next day the rigidity was more marked, especially in the lower limbs, and the head retracted. The pain had also increased. Antitetanic serum injections were then commenced. It was obtained from the Lister Institute, and, as recommeded, 100 c.cm. were injected in the first twenty-four hours into different parts of the subcutaneous tissues of the anterior abdominal wall and the arm, in doses of 20 c.cm.

The same night the patient complained of severe pain in the abdomen, and had a short slight spasm at 10.25 p.m. He asked to be turned on his left side, as the right was the more painful; then had tremor of legs. A little later he had opisthotonos lasting one minute, and severe slighter attacks before morning, but he slept in the intervals between them, took fluids well, and perspired profusely; temperature 99°.

Progress.

April 10th.—Day: He had eight spasms during the day, lasting from half to one and half minutes each, opisthotonos and slight pleurosthotonos. Pain chiefly down *right* side of body, and right lower limb and arm—very severe, causing him to cry out. Copious perspiration. *Night:* Bowels not moved since day of admission. Calomel gr. v. Morph. hypo. gr. ¼ at 8 p.m. Slept 8.30 p.m. to 12.30 a.m. Had eight spasms between then and 8 a.m., more severe and lasting longer—up to two minutes; well-marked opisthotonos. Tremors, chiefly of legs, followed

some of the spasms. Enema saponis—no result. Not passed urine during night.

April 11th.—Day: Temperature subnormal. Spasm at 8 a.m., passed urine shortly after, ʒxvij. Spasm in early afternoon, after which given hypo. morph. gr. ¼. Slept for three hours, then had another spasm. At 8.45 p.m. had very severe spasm lasting five minutes, with marked opisthotonos. Antitoxin 90 c.cm. to-day. *Night:* Morph. hypo. gr. ¼ at 9.40 p.m., with but little effect. Temperature 100.2°. Had twelve spasms during night, getting more severe—varying from one to five minutes. Complained of much pain in abdomen and in throat. Slept a little in the intervals between the spasms and continued to perspire copiously; not passed urine; bowels not moved; enema saponis—no result.

April 12th.—Day: Temperature 98°. Passed urine ʒxxij 9 a.m. Complains chiefly of pain down right arm and on front of chest. Antitoxin 60 c.cm. Morph. gr. ¼ hypo. Slept greater part of day; had one spasm at 6.30 p.m., lasting five minutes. Complains of more pain and rigidity in legs, and less in body. *Night:* Calomel gr. ij. Temperature 98.4°. Spasm at 9 p.m., another lasting six minutes at 12.15 a.m. Restless until 1.25, when morph. hypo. gr. ¼ given; slept till 5 a.m.; perspires freely, and complains of much abdominal pain. Another spasm at 6 a.m. Mag. sulph. in morning—no result.

April 13th.—Day: Temperature 100°. Much pain in head and right side. Turpentine enema; good result, and feels easier after two slight spasms. Antitoxin 50 c.cm.; 300 c.cm. to date. *Night:* Did not sleep much, but had no spasms.

April 14th.—Day: Temperature 98°. Morph. hypo. at 9.30 a.m. because much pain complained of; slept till 4 p.m. Pain troublesome in both arms and in head; most pain on right side. Slight spasm at 7 p.m., lasting a few seconds. Passed urine freely; bowels well moved. *Night:* Breathing appeared difficult, and the patient restless. Morph. hypo. ⅛ gr. at 12; slept off and on till 4 a.m. Had one slight spasm lasting a few seconds, and occasional starts waking him out of his sleep.

April 15th.—Day: Temperature 100°; still has much pain in head and down right side; three slight spasms this morning. Pleurosthotonos; very little opisthotonos. *Night:* Pain continues, but not quite so severe. Dozed for two hours, interrupted by occasional moans. Nepenthe, mxv; slept soundly for two hours; no spasms.

April 16th.—Day: Appears better; could move head from side to side, and had not much pain, except on attempted movement. Could open his mouth slightly to-day to the extent of about ½ in. No attacks of spasm. *Night:* Had nepenthe, mxv, at 8.45 p.m.; slept—4 a.m. Two slight spasms, and pain down the right side increased in severity again.

April 17th.—Day: Temperature 99° to 100°. Appeared better again. Pain less. Power of separation of upper and lower incisor teeth about the same—½ in. Could move his head more. No spasms. *Night:* Slept fairly well. No spasms.

April 18th.—Day: Felt much better. Pain only slight, and only in right limbs. Could move his head more freely from side to side, but the muscles of the jaws showed no more improvement. Had an attack of impending suffocation, breathing rapid and laboured for ten minutes, afterwards quite comfortable. *Night:* Good night, except for similar attack as during day, lasting two minutes. Perspiration still free. Slight pain in chest and throat. Could flex lower limbs to some extent, and move arms freely. No further spasms.

April 19th.—Day: Rigidity passing off more rapidly. Power of movement of legs much improved, as also other parts. Antitoxin 60 c.cm.; total, 360 c.cm.

He continued to improve until April 23rd, when temperature went up to 102°. Pain between shoulders, with few crepitations at right base. Also complained of joint pains, his wrists being red and swollen. These symptoms passed off in a few days, and on and after April 28th his temperature was normal. On April 29th he could move his legs freely, as well as arms. Could open his eyes fully. There only remained the tonic contractions in the mouth muscles, the tetanic grin being still perceptible to a slight degree. He was able to sit up in bed to-day. By May 3rd all rigidity had passed off, and a week later he was discharged well.

CASE II.—ANTHRAX.

The patient in this case, a man aged 29, was admitted on February 19th, 1910. He was a dock labourer, who had been working two months previously handling wool.

State on Admission.

He was sent in as a case of anthrax, and presented most of the clinical appearances of that disease. There was a pustule on the upper lip, but it was not quite typical. The surrounding skin was indurated, and there was widespread oedema, but the characteristic dark-brown eschar was not present. The *Bacillus anthracis* was not discovered, although search was made for it. His temperature was 100.4°, and he complained of acute pain about the mouth, nose, and neck.

Treatment.

Serum treatment was commenced about three hours after his admission, 10 c.cm. being given at that time, and a further 10 c.cm. five hours later. The bowels were opened by calomel and pulv. jalap. co.

Progress.

The next day (February 20th) his temperature went up to 102°; pulse 116–120; respirations 34–38; 10 c.cm. antitoxin again injected.

February 21st.—The temperature was still higher—102.8°; pulse 129; respirations 34. Fomentations were applied to the face, and at night he had a morphine suppository gr. ½; also the injection of antitoxin (10 c.cm.) was repeated.

February 22nd.—Temperature 103°, 102°, 102.8°; pulse 138; respirations 38–40. Mist. stimulans ʒj three-hourly was ordered, and at night he had veronal gr. x.

February 23rd.—His condition was much the same, though there was a slight fall of the temperature at night—101.6°; pulse 140; respirations 40; antitoxin 10 c.cm. injected.

February 24th.—There was a further fall of the temperature—down to 101°, but an increase in the pulse-rate—146; respirations 44–46; 10 c.cm. again injected.

February 25th.—There was little change, but on the following day the temperature was 104°. The injection—10 c.cm.—was repeated.

Result.

From this time the temperature began to decline—by lysis—and a week later it was down to normal, after which there were two slight rises of temperature—99° and 99.8° respectively—and then the temperature remained normal. As for the local condition, improvement was noticed soon after the injections were commenced. The progress was rapid, so that in a little more than one week very little sign of the pustule or of the oedema remained. The patient was discharged to town, with his face and head quite healthy, on March 23rd; he, however, complained a little of his chest, and a week later was readmitted (March 30th) with symptoms of a cold. Finally, he was discharged quite well on April 15th, 1910. The total quantity of antitoxin injected was 70 c.cm. It was Professor Sclavo's antianthrax serum.

REMARKS (BY MR. ALEXANDER).

It is of great importance to commence the serum treatment of disease at the earliest possible moment. When the whole system has been overrun by the enemy, all the strongholds and the citadel of life captured, and the ordinary defenders dead or demoralized, the use of the serum treatment must always end in disappointment.

In the first case it was evident that the patient, a young and robust man, was in the grip of a very acute form of the disease. We cannot say that the disease would, under ordinary treatment, have proved fatal, but our experience in former similar cases leads us to believe that such would have been the issue. The antitoxin was ordered at once, but a short delay arose in obtaining it. We followed carefully the instructions issued by the Lister Institute, from which we obtained the serum. The chloral and morphine were only given to relieve and to obtain sleep, but cannot have had any effect in the actual cure of the patient. Should any cases of tetanus come before us in the future we shall certainly begin the same treatment at the earliest possible moment.

The second case, that of anthrax, is incomplete. Part of the notes were accidentally destroyed, so that many details are wanting. The case had the clinical appearances of anthrax, except that the ulcer did not show the characteristic eschar. The bacteriologist was not available at first, so that no laboratory investigations were commenced until some time after the serum treatment was well advanced. The bacillus of anthrax was not found, but this organism is not always found in undoubted cases during life, and we had, fortunately, no opportunity of looking for it after death. The local effect of the injection was much more marked than the general effect. The face and cheek began to clear up long before the temperature showed any signs of subsiding.

AN interesting presentation took place in the Memorial Hall, Newcastle, co. Down, on the evening of August 22nd, Lord Roden presiding; the recipient being Dr. Bell, who has been in practice in this well-known Ulster watering place for some years, and who is leaving to take over a practice in St. John's Wood, London. There was a large attendance, and many remarks were made which showed the high place Dr. Bell held in the hearts of his patients and their opinion of his skill. Dr. Bell is also a high favourite with the profession, who regret his departure but wish him well. An address and purse of sovereigns were presented to Dr. Bell and a beautiful souvenir to Mrs. Bell.

Reviews.

MEDICAL SOCIOLOGY.

IN a volume entitled *Medical Sociology*,[1] recently published by Dr. JAMES PETER WARBASSE, an attempt is made to attain two ends: first, to deal comprehensively with the important subject of sociology from the health point of view; and, secondly, to offer a dissertation on the science and art of medicine. The dissertation is accompanied by a running commentary on the progress of medicine from the earliest evolution of scientific knowledge to the present day, and on through that to the future, when, with prophetic eye, the author sees medicine in a position of such exalted importance among men that they "shall call its mission holy." A combination of subjects such as this makes it difficult to appreciate the class of readers to whom the book will especially appeal. There is matter of interest in the first section for lay as well as for medical readers, but the second section can scarcely be said to have much attraction for any but those who are engaged in or specially concerned with the profession of medicine. The general public can have only a lukewarm interest in such subjects as "the rationalization of therapeutics," "the fate of medicine," "State and college medical examinations," "medical libraries"—to name only a few of the headings of chapters. Some of the questions discussed in the sociological section are highly contentious. In Great Britain, at the present time, much is being done for the proper care of children—in some directions it is even asserted by competent critics that the vicarious assistance of public authorities is going too far—but the most enthusiastic advocate of State protection for children on this side of the Atlantic would scarcely, we imagine, go the length of proclaiming that "the whole responsibility for the child should not rest on the parents alone," and that "children shall be born directly into the custody of society, and society shall demand that they receive the attentions necessary to make them healthy and helpful." Whether such familial solicitude on the part of the State is acceptable to the American people we do not know, but in other countries hesitation is felt at undermining parental responsibility by any form of legislation which would lead to the loosening, in however small a degree, of that tie which binds the child to its father and mother, and which assures, more than any other bond, the maintenance of the family life and the home sentiment. Dr. Warbasse is not, however, content with State interference so far as children are concerned. He goes further, and lays claim to the desirability of—if not the actual need for—the State control of marriage. He says:

> But one thing the State can do, and now; it can demand a clean bill of health from the man who applies for a marrying licence. The innocent wife is the one who too often reaps the wild oats sown by the husband. The State owes it to her to see to it that the marriage contract, with which it is so much interested, shall carry with it a guarantee of safety. When a woman yields herself up for motherhood, she is rendering the greatest service that any one can perform for the State, and she, above all of a country's charges, should be protected. The nations that throw this safeguard about their women are destined to march in the van of human progress. If the State is not ready to take cognizance of every man with gonorrhoea or syphilis, as it now does of every man with small-pox or scarlet fever, it at least must be ready to prevent him from deliberately transmitting these diseases to another when he signifies his intention to do so.

Theoretically such a system of control may be a justifiable sociological ambition, but why confine the control to one class of disease only? Surely many others might be enumerated with contingent possibilities almost as great as syphilis, and certainly greater than gonorrhoea. The book is uneven, but is a fair sample of much literature of a similar character which is at present reaching us from America. Some of the views expressed by the author are unreservedly praiseworthy, but others are open to the suspicion that always attaches to theory unchecked by appeal to history or experience.

[1] *Medical Sociology. A Series of Observations touching upon the Sociology of Health and the Relations of Medicine to Society.* By James Peter Warbasse, M.D., Attending Surgeon to the Surrey M. E. Hospital, etc. New York and London: D. Appleton and Company. 1909. (Post 8vo, pp. 372. 8s. 6d.)

NATIONAL HEALTH.

THE distribution of literature of a popular character has long been recognized by social reformers as a weapon that must not be despised. It is, however, one which soon becomes rusty, and if it is to achieve all that is required of it the most recent researches must be promulgated, and all antiquated notions cast on one side. For this reason, the National Health Manuals, which are being edited by Dr. T. N. KELYNACK, are to be welcomed. They will be issued in separate volumes, each dealing with a special aspect of hygiene in the light of our present-day knowledge. The first is concerned with *Infancy*,[2] and in its compilation the editor has called to his assistance eleven other members of the medical profession, each of whom contributes a chapter upon a particular aspect of infant life. In his choice of contributors Dr. Kelynack has been fortunate. No one is better qualified to give an account of infants' milk dépôts than Dr. Buchan, the Medical Officer of Health of St. Helens, in which town these institutions were first established in this country. Dr. J. F. J. Sykes is well able to describe what municipal action can be taken with respect to infantile mortality; and Dr. Dora Lidgett Bunting has been so closely connected with the St. Pancras school for mothers that it is quite fitting she should describe these institutions. Dr. F. S. Toogood, as Chairman of the Executive Committee of the National Society of Day Nurseries, speaks with authority on the value of the crèche or day nursery. Other contributors include Dr. J. B. Hellier, Sir W. J. Thompson, Dr. J. S. Fowler, Dr. A. Dingwall-Fordyce, Dr. Stanley B. Atkinson, Sir John W. Byers, and Dr. T. A. Helme. With so many writers dealing with the same subject but each from a different point of view, it is inevitable that there should be a certain amount of overlapping and of repetition, but it is remarkable that so little has occurred. If Dr. Kelynack is able to keep up in the subsequent volumes of his health manuals the high standard he has set himself in the first, he will add a series of books to our literature which cannot fail to have a beneficial influence upon the national wellbeing.

POOR LAW REFORM.

MR. BAGSTER WILSON is the Medical Superintendent of the Birmingham Medical Mission, a position in which he was preceded by his father, so that all his life he has been familiar with work among the poor and with the problem of dealing with them, and no one could have had better opportunities for studying the questions on which he has endeavoured to formulate his opinions in this little book on the *Poor Law Crisis*.[3]

He considers that the problem of poverty should be concerned with poor families and their conditions, and not with poverty in the individual. He realizes how much the poor suffer from their own defects, their carelessness, obstinacy, thriftlessness, and ignorance, as well as from their proneness to waste their money on worthless articles, on alcohol, and on gambling, but he contends that a man and his wife and three children must be very poor on an average income of 19s. 3d. a week, which is what he says the unskilled labourer can earn in Birmingham, and that such a man is in no position to supply medical treatment for himself and his family even by contributing to a provident institution.

Mr. Wilson reviews the system of Poor Law relief as now administered in Switzerland, Denmark, and Germany, and the English Poor Law system as it has existed since 1601, dividing this into three periods. He recognizes that since 1834 it has been based upon the principle that a system of Poor Law relief is for the good not of the persons relieved but of the community; that the lot of the pauper should not be made more desirable than that of the lowest independent labourer; and that it is the duty of the State to seek to eradicate pauperism by teaching and training, by inculcating habits of industry, independence, morality, cleanliness, and temperance, but yet in his opinion it has failed. He seems to think it has failed mainly because there has been a woful disregard of the health of the poor, and that it is on account of feeble health that there

[2] National Health Manuals: *Infancy*. Edited by T. N. Kelynack M.D. London: Robert Culley. (Cr. 8vo, pp. 192. 1s.)

[3] *The Poor Law Crisis; Reform or Revolution?* By H. Bagster Wilson, M.R.C.S. London: The Poor Law Publications Co. Birmingham: E. F. Hudson. 1910.

are so many families sunk in poverty. For this reason he urges that all large towns should be divided into health districts, in each of which there should be a representative of the medical officer of health, who should have charge of a State dispensary, but side by side with this there should be a provident dispensary officered by the general practitioners in the district. He would also like to see local medical councils established upon which there should be medical and lay representatives from all the medical charities and from the general body of medical practitioners, the duty of which should be to co-ordinate medical relief and to advise the health committee in such matters. He recognizes how very much the success of any scheme must depend upon the voluntary service of good men and women, and he notes with admiration the work done in Germany by the *Armenspfleger*, who are citizens, voluntary and unpaid, but having official status, whose duty it is to visit the poor and take care that their necessities are relieved.

Mr. Wilson's book, and we may add, a paper published by him in the June number of the *Birmingham Medical Review* under the title, Doctors and Social Progress, are well worth the attention of every one who is interested in this subject.

DISEASES OF THE STOMACH.

The output of American medical works which reaches this country is very large, and many are the result of considerable industry, literary research, and clinical work, yet it would be impossible to say that they all add to our knowledge, or, in other words, that they are not superfluous. Another very usual feature is their large size, this magnitude being due to the habit of incorporating in them much non-essential matter, while the number of illustrations is far beyond what is needed in order to make the text intelligible. The book before us on *Diseases of the Stomach and Intestines*,[4] by Dr. Robert Coleman Kemp, is an example of all that has just been said. It contains 766 pages, with 280 illustrations, "some in colours." A few titles of the illustrations will show the extent to which this pictorial method is carried. In connexion with the local treatment of the stomach, Fig. 75 is a drawing to show the correct method of passing the tube; Fig. 76 is a diagram to show the course of the tube; Fig. 77 is a drawing to show lavage by a single operator, position 1; Fig. 78 the same, position 2; Fig. 79 shows lavage by two nurses, step 1; Fig. 80 the same, step 2; Fig. 81 is a drawing of Friedlieb's stomach tube (a common form); Fig. 82 shows nurses performing lavage with this tube, step 1; Fig. 83 shows step 2; Fig. 84 shows stomach irrigation with T tube, step 1; Fig. 85 the same, step 2; Fig. 86 is a Knapp's director; Fig. 87 shows lavage through the nostril, step 1; and Fig. 88 the same, step 2. The author claims to be "simple and practical," yet he describes complicated methods which cannot be carried out except in a laboratory, and he includes others of doubtful value; he devotes space to such "simple and practical" procedures as gastroscopy, gastrodiaphany, radium transillumination, and radium photography! Such work is merely compilation; these subjects have not been duly filtered through the writer's personal experience, yet when teachers set themselves to write this is what they should strive to give us. It is compilation, too, when on the same page in one place we find that a nutrient enema "should not exceed 250 c.cm.," and lower down a formula "which he has found useful" is given containing 375 c.cm., besides two raw eggs and 3 drachms of sanatogen! The volume deals with both medical and surgical affections, and on the whole the surgical part of the book is better than the medical, although we do not know whether the author is an operating surgeon or not. He appears familiar with such modern German work as has been translated and published in America, but his chief sources of information are American, and he credits his countrymen with observations and suggestions which have not always originated on that side of the Atlantic. He spells Romberg "Rhomberg," Meinert "Meynert," Bidder "Bedder," and he twice writes "regimé" for régime. He states that enteroptosis is an essential factor in mucous colitis, but a factor to be essential must be constant, and that it is not. The book includes typhoid fever as a gastro-intestinal disease; on the same principle he might have included Asiatic cholera. We think it a mistake to say that gastritis requires treatment in bed, although this may be true where there is persistent vomiting; ordinary gastritis can be treated satisfactorily without rest in bed. On the other hand, there should be no ambiguity about the need for treating gastric ulcer in bed; it is not merely preferable, but it is absolutely as essential as in typhoid fever. The treatment of gastritis by teaspoonsful of hot water seems futile; we would suggest half-pints. Why on the same page is "soda water" forbidden and "mineral water" recommended in the treatment of the same affection? The dose of hydrochloric acid is inefficient if it is to make up for the defect in the gastric secretion, while the value of gelatine recommended as a haemostatic is doubtful, as it is useless if sterilized and dangerous if not. All that we have said above of the evidence of industry, literary research, and clinical work is applicable to this book, but it is not marked by any distinctive merits.

[4] *Diseases of the Stomach and Intestines.* By Robert Coleman Kemp, M.D. Philadelphia and London: W. B. Saunders Company. 1910. Roy. 8vo, pp. 766; illustrations 280. 25s.)

BACTERIA IN COUNTRY LIFE.

This book[5] is the latest addition to the Rural Science Series which Mr. L. H. Bailey is editing for Macmillan. The present volume, by Professor Jacob G. Lipman, is addressed primarily to students of agriculture and its allied sciences, and little or no previous knowledge of bacteria is presupposed in the reader. The first part of the book is accordingly devoted to the history of bacteriology, and the morphology, physiology, and chemistry of bacteria and allied species of micro-organisms. This is well and clearly written, and conveys just the information required by the class for whom it is intended. The chapters on bacteria in air, water, and sewage are also clear and correct in detail, but necessarily overlap a good deal the regular textbooks of hygiene and sanitation. However, the author may fairly claim that without them his work would have been incomplete. The last part of the book, dealing with the relations of bacteria to the preservation of milk and the manufacture of cream, butter, and cheese, are excellent, but Professor Lipman is naturally most interesting on his own special subject—that is, the bacteriology of the soil. Particularly good is his account of what we may venture to call "telluric respiration," the interchange of gases between the soil and the atmosphere, which will be a fresh subject to many readers. His account of the nitrifying bacteria is very complete, and all those—farmers, gardeners, or others—interested will find here an exhaustive discussion of the various modern bacterial methods of rendering the atmospheric nitrogen available for the fertilization of crops. The book may be confidently recommended to all students of agriculture.

SYMPTOMATOLOGY OF LIVER AND PANCREAS.

The little work on the examination and symptomatology of the liver and pancreas, by Dr. L. Pron,[6] is an elementary textbook intended for the use of students and practitioners. It is divided into two parts, the first on the liver and the second on the pancreas. That on the liver gives some account of the physiology of the organ, of the general etiology of its diseases, and of its relations to other organs in the body. The author then proceeds to describe the examination of the patient, of the urine and stools, of biliary calculi, and gives the various physical methods, including, of course, palpation and percussion. The different symptoms are then discussed separately; for example, enlargement, atrophy, jaundice, fever, pain, ascites, and enlargement of the spleen. The second part, on the pancreas, follows on the same lines, but is shorter. In discussing the diagnosis of jaundice, the author condemns Gmelin's reaction as being insufficiently delicate, and every one must admit that it frequently fails; he finds the iodine test better, although we have not observed much difference between the two, sometimes one giving a better

[5] *Bacteria in Relation to Country Life.* By J. G. Lipman, A.M., Ph.D. The Rural Science Series. Edited by L. H. Bailey. New York and London: The Macmillan Company. 1908. (Post 8vo, pp. 506. 6s. 6d.)

[6] *Examen et séméiotique du foie et du pancréas.* Par le Docteur L. Fron. Paris: Jules Rousset. 1910. (Cr. 8vo, pp. 178. Fr.3.)

reaction, sometimes the other, with the same urine. He recommends the elaborate method of Grimbert, which is not practicable outside the laboratory, but he praises Monckton's simple methylene-blue test, which, though not in general use, deserves attention; it is performed by taking two test tubes, each three-parts full of water, to one of which is added 2 or 3 drops of a solution of methylene blue and to the other 30 drops of urine; into the latter 20 drops of the diluted solution of methylene blue is poured. With a normal urine this gives a clear blue, but in the presence of traces of bile pigment a greenish colour is developed; by comparing the two tubes the change of tint is made manifest. Although he has found this method satisfactory, Dr. Pron admits that it has been criticized, and therefore prefers the method of Obermayer and Popper. Their reagent is composed of water 625 c cm., alcohol (95 per cent.) 125 c.cm., sodium chloride 75 grams, potassium iodide 13 grams, tincture of iodine (10 per cent.) 3 5 c.cm.; a few drops are added with a pipette to 5 c.cm. of fresh urine, which must be acid and filtered. At the line of junction between the two liquids a ring appears coloured blue or emerald green or deep bluish-green, according as the urine contains more or less bile pigment. He thinks this method gives excellent results, and, being simple and rapid, is worthy to come into common use. Among the tests for blood in the stools he does not mention benzidine, and in describing the physical signs of a hydatid cyst of the liver he does not draw attention to the usual absence of tenderness and want of symmetry in the shape of the tumour. In his description of the pancreas he follows Carnot, whose book on the pancreas we reviewed some two years ago. We have not noted anything new in his remarks, and are disappointed to find him saying of Cammidge's reaction that "it is useless to describe this reaction, which is very complicated, as certain authors consider it to be artificial and capable of being obtained with any urine, while Carnot considers its significance and symptomatic value to be uncertain."

HANDBOOKS FOR NURSES.

THE *Guy's Hospital Nursing Guide*[7] was originally issued as a handbook for the Nurses' League of Guy's Hospital; but a wise policy has expanded it into a nursing guide which will be equally useful for all nurses. The fifth edition, which was issued last year, is quite the best of the numerous books for nurses which we have seen. There is no useless recapitulation of the instruction which the nurse picks up as a matter of routine in the wards, but all that it would be a strain on her memory to carry in her head is here summarized and scheduled in a little book of reference which can easily go in her reticule. Apart from professional and technical details of this sort, there are admirable articles telling the would-be nurse how to become one, and especially how not to become one; and there is very full instruction for the qualified nurse as to how to go about earning her living. This book should be equally invaluable to the nurse at every stage of her career. The editor is to be congratulated on a masterpiece of the practical.

The scheme underlying *A Handbook for Nurses*[8] differs in some degree from that of many volumes of corresponding title, its author, Mr. SYDNEY WELHAM, Resident Medical Officer, Charing Cross Hospital, wisely refraining from any attempt to deal on paper with such a thoroughly practical subject as nursing. But nursing, of course, is based on principles, and these are fully set forth in this volume. After some thirty pages dealing with anatomy and physiology, the more important symptoms of the principal medical diseases, the treatments commonly adopted are described, any point requring special attention from the nurse being indicated. Surgical diseases are treated in the same fashion, bacteriological principles not being overlooked. Finally come some chapters on technique, including the administration of douches, forced feeding, etc., an appendix relating to diets, and a useful glossary. The idea of the book is well carried out, and it should prove a useful reference work for nurses both early and late in their career.

Written primarily for the nursing orderlies in the military service, this book on *Practical Nursing*[9] necessarily contains certain details which apply to the usages of military hospitals and to the nursing of cases more likely to be met with abroad than in this country. It should prove most useful to the orderlies of the Royal Army Medical Corps, both Regulars and Territorials. It is, however, of wider utility than its title suggests, and may be studied with advantage by all who wish a good textbook on practical nursing. It contains also a large amount of medical information which would be most helpful to those—for example, missionaries and travellers—who must rely on their own resources in remote parts of the world. It seems to us a most useful and complete nursing manual.

DENTAL SURGERY.

OUR opinion stands on record. and still holds, that *Anaesthesia in Dental Surgery*,[10] by T. D. LUKE, is an excellent little book, which we confidently recommend to all interested in the subject. The third edition has been revised, but on p. 36 one has to read on to gather that gags and not tampons are the subject-matter; and from p. 57 one gathers that the young children of Edinburgh wear corsets. Chloroform for dental operations the author unhesitatingly condemns; but his advocacy of ethyl chloride except as a *portable* anaesthetic fails to convince us. In an appendix on the present position of the anaesthetic question (p. 219) the author insists that ordinary "gas" should be differentiated from "nasal gas" administration, which he rightly describes as fraught with as much danger in inexpert hands as that of "gas and ether," or "gas and ethyl chloride." We find no reference to status lymphaticus, or to septic and purulent mouths as dangers in anaesthesia. Besides the tables of deaths from chloroform and from "gas," useful lists of continuous gas and of ethyl chloride cases have been added.

Owing to the progress of microbiology and antisepsis the domain of dentistry has enlarged considerably, and good extractions and fillings no longer comprise the whole of the art. The modern practitioner must be able to recognize certain maladies belonging to the category of general medicine, and often to formulate a treatment by drawing his indications from a group of symptoms or from an etiology most diversified. Hence the authors of *Consultations et thérapeutique dentaires*[11] have thought to do a service to their brethren by bringing together an account of the maladies they are likely to see, and giving for each, under the form of a consultation on a case, a complete picture of the treatment to be adopted. There is a short but suggestive introduction on the bacteriology of the mouth; but the task of grouping together the maladies the dentist is likely to encounter has not proved an easy one, and the authors seem to have allowed themselves to be led astray by the converse idea that they should describe dental accidents for medical men, and have devoted a very considerable portion of their space to such subjects as "filling materials," "pulpitis," "dental caries," giving information quite unnecessary to the dentist. The rest of the book is incomplete and sometimes incorrect. The only mention of the diversified etiology of facial neuralgia is contained in about twenty lines enumerating possible general causes, and such notes as that the neuralgia of diabetes, gout, alcoholism, or tobacco poisoning will be ameliorated by medication directed to the cause.

[7] *Guy's Hospital Nursing Guide and Register of Nurses trained at Guy's Hospital.* Fifth issue. Edited by the Matron. London: Ash and Co., Limited. 1909. (Demy 8vo, pp. 166. 1s. 6d.)

[8] *A Handbook for Nurses.* By Sydney Welham. London: Mills and Boon, Ltd. (Post 8vo, pp. 239. 3s. 6d.)

[9] *Practical Nursing for Male Nurses in the Royal Army Medical Corps and other Forces.* By Major E. M. Hassard and A. R. Hassard. London: H. Frowde and Hodder and Stoughton. 1910. (Post 8vo, pp. 352. 3s. 6d.)

[10] *Anaesthesia in Dental Surgery.* By Thomas D. Luke, M.D., F.R.C.S.Edin., formerly Lecturer on Anaesthetics, Edinburgh University, Anaesthetist to the Dental Hospital, Edinburgh, etc., and J. Stuart Ross, M.B., F.R.C.S.Edin., Anaesthetist to the Deaconess Hospital, Dental Hospital, Edinburgh, etc. London: Rebman, Ltd. 1910. (Cr. 8vo, pp. 239; illus. 27. 6s.)

[11] *Consultations et thérapeutiques dentaires.* Par le Dr. J. Esteoule et L. Dauzier. Paris: Vigot Frères. 1910. (Fcap. 8vo, pp. 265. Fr.4.)

On page 235 the base of a primary syphilitic ora[1] chancre is said to be markedly indurated. In the section on general anaesthesia, "gas" is said to produce in about forty seconds an anaesthesia lasting four or five minutes; and only the "open" method of ether administration is described. We are told that in one place alcohol and cider predispose by the action of their acids of fermentation to caries and gingivitis, and at another that alcohol 50 per 100 is the best mouth antiseptic. The authors seem unduly fond of scarification and the use of the actual cautery as a counter-irritant (for example, in the early stage of dental abscess). The actual cautery, too, is in high favour for small operations, on the ground that it ensures perfect antisepsis, the ever-present germ ready to invade the injured tissue being apparently forgotten. The detritus of meat lodging among the teeth is said to putrefy and attack the enamel, and other questionable statements might be cited, but enough has been said to justify the statement that the book is not only incomplete but sometimes inaccurate. The authors make a point of having chosen the most useful prescriptions for each case, but we doubt the value of subcutaneous injections of iodoform or of camphorated oil in any of the conditions touched on, and we think the list of prescriptions could well have been diminished by half. All told, we cannot recommend the book; but it serves its purpose in indicating the trend of thought of European dentistry toward a wider and less mechanical aspect of the dental art.

NOTES ON BOOKS.

IN the present expanding stage of electro-therapeutics a periodical, or at most a small manual, is better fitted to cope with the subject than such a mountainous work as *Medical Electricity and Roentgen Rays*.[1] During the preparation of these thousand pages by Dr. TOUSEY'S unassisted pen, new applications of electricity have been discovered and some of the older applications have been discredited, with the result that at certain points his work is "high and dry." Indeed, save in the *x*-ray portion, we have been unable to find one among the hundreds of his references of more recent date than 1907. Ionic medication, for example, although expounded in an interesting fashion and with considerable originality, is scarcely as up-to-date as might have been expected at this late day and in a monograph of this ambition. Fulguration, again, has a place in the volume, but the later and disappointing results obtained by the experts are not included; and in a work with a special section on phototherapy one might expect more than a bare dozen lines upon the Kromayer lamp. That this inadequacy is not due to anything save the special conditions under which such a big task had to be carried out is shown by the general care and lucidity with which the author handles his subject. If his able exposition of *x*-ray photography were detached and separately published it would be of the greatest service to the inexperienced.

LUFF AND CANDY'S *Manual of Chemistry*[2] is intended specially to meet the requirements of medical students in regard to this subject, and is in the main admirably adapted for the purpose. The balance is well maintained in presenting fact and theory, the general and the particular. The attempt to deal with practical chemistry, including the preparation of salts and qualitative and quantitative analysis, in a single chapter of 29 pages is hardly to be commended, and gives an unfortunate appearance of the work being a "cram book" which is not warranted by the greater part of it. In spite of this, medical and other students will be well advised to obtain the new edition of this book.

THOMPSON'S *Compendium of Medicine and Pharmacy*[3] contains a large amount of useful information, but of so heterogeneous a nature that it is impossible to discover the principle on which it has been selected. The subtitle of the book describes it as "for medical practitioners and pharmacists," but there can hardly be any members of either profession who need to refer to a book to learn that the way to find the specific gravity of a liquid, when the weight of a given volume of it is known, is to divide the weight of it by the weight of an equal quantity (*sic*) of water; and any one lacking such knowledge would scarcely look for it in a prescriber's compendium. Detailed directions for ascertaining the quality of ginger rhizome by finding the proportions of ethereal extract, alcoholic extract, and ash which it yields are surely out of place in the same volume as notes on recent and unofficial remedies, "bacteriological memoranda," selections from the formulae of the *British Pharmaceutical Codex*, an index of diseases and remedies," and so-called "synopses" of the British, German, French, and U.S.A. Pharmacopoeias (the last three consisting merely of a very small selection of formulae and a few notes), with much other matter. Far too much has been attempted for any one section to include all the information likely to be wanted. The absence of an index further reduces any utility the book might otherwise possess.

[1] *Medical Electricity and Roentgen Rays.* With chapters on Phototherapy and Radium. By Sinclair Tousey, A.M., M.D. Philadelphia and London: W. B. Saunders Company. 1910. (Roy. 8vo, pp. 1115; 800 illustrations. 30s.)

[2] *A Manual of Chemistry, Theoretical and Practical, Inorganic and Organic, adapted to the Requirements of Students of Medicine.* By Arthur P. Luff, M.D., B.Sc.Lond., F.R.C.P., F.I.C., and Hugh C. Candy, B.A., B.Sc.Lond., F.I.C. New and enlarged edition. London and New York: Cassell and Co., Limited. 1910. (Fcap. 8vo, pp. 638; illus. 46. 7s. 6d.)

[3] *The Compendium of Medicine and Pharmacy:* a Handy Pocketbook of Reference for Medical Practitioners and Pharmacists. By C. J. S. Thompson. Third edition. London: John Bale, Sons and Danielsson, Limited. 1910. (Pott 8vo, pp. 342. 5s.)

MEDICAL AND SURGICAL APPLIANCES.

Forceps for Removal of Turbinate Bones.

MR. GEORGE W. BADGEROW, F.R.C.S. (Senior Assistant Surgeon, Throat Hospital, Golden Square, W.), writes: I have designed the forceps illustrated in the figure more especially for the removal of the anterior ends of the inferior and middle turbinated bones. They are made somewhat on the design of Luc's forceps, but the blades are made to punch or cut a piece cleanly out, and the peculiar jointing of the forceps ensures the accurate approximation of the cutting surfaces. I have used them in a number of cases and find them highly satisfactory, and they will also be found useful for the removal of septum and crest in submucous resection, and they form an efficient punch for removing portions of the tonsil. They are manufactured by Mayer and Meltzer, Great Portland Street, London.

An Ophthalmic Note Chart.

Dr. C. A. Adair Dighton, of Scarborough, has brought out a chart for recording notes upon eye cases. One side of the chart is ruled for details of the case which are to be entered in definite spaces. Thus, under external examination we find the following heads: Lids, conjunctiva, sclerotic, anterior chamber, iris, pupil, tension, vision, and nystagmus. Then follow focal illumination and other methods in rotation. On the back of the chart is a space for treatment and a financial column for debit and credit. The sheet is published by the Medical Supply Association. The idea is not a new one. Messrs. Pulman, of Thayer Street, supply a casebook which was devised by Mr. Ernest Clarke. These formal charts are excellent when notes have to be taken by students, but they have less value from the specialist's point of view.

A Visiting Bag.

We have recently inspected a case made by Messrs. Fisher, Limited, 188, Strand, for the use of general practitioners, under the name of the "M.D. Visiting Case." In appearance it is a dispatch case, its extreme length being 16 in. A strong point in its favour is that on opening the lid everything which the bag contains can be seen at a glance, with the exception of such towels, ligatures and other odds and ends as may be stored in the flap pocket on the inner side of the lid. Sockets are provided for a variety of bottles, and there is ample space for obstetric instruments of all kinds, including a sterilizing apparatus. The case could, of course, if required, be used for other purposes than that for which it is more immediately intended. The makers informed us that it is their intention to line it with material of an impermeable character, capable of being washed or sterilized, in which case the bag is likely to be a very useful possession to many practitioners.

LOCAL IRRITANTS AND CANCER.

ELSEWHERE in this issue will be found a paper by Dr. Ernest Neve on epithelioma caused by the irritation of the kangri, a portable fire basket carried by the natives of Kashmir under their clothes. Any readers interested in the subject may find it convenient to have before them as a complement to Dr. Neve's paper the following extract from the Third Scientific Report on the Investigations of the Imperial Cancer Research.[1] Dr. Bashford there says (p. 19):

"The occurrence of epithelioma of the anterior abdominal wall in Kashmir with a frequency met with nowhere else is also most instructive. Some years ago Dr. Neve drew attention to the development of squamous-celled carcinoma in kangri burns. The kangri is a small earthenware vessel enclosed in basket-work variously decorated, and used to contain a charcoal fire. The kangri is suspended round the waist under the flowing robes to assist in maintaining warmth by the natives of the cold hills of Kashmir. Repeated burns and long-continued chronic irritation of the skin of the abdomen are the consequences. A common sequel to this long-continued chronic irritation is the development of squamous-celled carcinoma with metastases in adjacent lymph glands. We are indebted to Drs. Neve and Rawlence for a specimen of the 'kangri' as well as for photographs of natives using it. We have examined a large number of 'kangri cancers' in all stages of development. Their characteristic structure leaves no doubt that they are epitheliomata, the accompanying figures obviating any need for a detailed description. In the case of Egypt the apparent association of cancer of the bladder and penis with infection by *Bilharzia haematobia* illustrated the development of the disease as a sequel to a different form of chronic irritation. The relation of these different forms of chronic irritation to the development of cancer in different parts of the world helps us to comprehend better the part played by other forms of chronic irritation whose association with cancer has long been observed. These irritations may be mere direct *physical* injury as in fracture of bone or in the 'horn core' of cattle in India (this is a most interesting and instructive form of malignant new growth to which our attention was directed by Captain Brodie-Mills of Bombay. Squamous-cell carcinoma develops at the root of the right horn with great frequency in cattle used for draught purposes—the right horn being used by the natives to attach the animals to agricultural implements or draught wagons), *chemical* as in paraffin, petroleum, arsenic, and aniline cancer, *actinic* as in the case of the hot short clay pipe, the kangru, the *x*-ray, or brand cancers (of cattle). Woodhead has observed several cases of squamous-celled carcinoma develop in engine-drivers over the shin where the skin had been exposed for years to the direct action of heat. They may be of an *infective nature* as in bilharzia for the bladder, the tubercle bacillus where epithelioma develops in an old lupus scar, or *Treponema pallidum*, as in the association of keratosis linguae with epithelioma of the tongue. The irritant may be a *larger parasite*. Borrel has recorded the association of cancer with nematodes and cestodes, and we have observed a case of carcinoma of the small intestine in a mouse at the site of attachment of a tapeworm. The irritants cited can readily be augmented by the enumeration of many others having nothing in common, and they can have only a mediate relation to the causation of the disease. This is a conclusion we have expressed already, and it will be reverted to again in discussing the occurrence of cancer in animals, without studying which it would be very unwise to express any opinion on the significance of the association of chronic irritation with the development of cancer in man.

THE KANGRI.

(For permission to reproduce this illustration we are indebted to the courtesy of Dr. Bashford.)

"The study of all the circumstances associated with the sporadic occurrence of cancer must remain indispensable so long as we are unable to test the relative importance of each by other than statistical methods. The true importance of some of the circumstances which have been defined as having a mediate relation to the development of cancer can only be cleared up after its nature has been ascertained, and purely statistical investigations will remain more or less empirical until this end is attained. The statistical investigation of infective diseases was pursued advantageously before the development of bacteriology directly demonstrated the causes of many of them. That demonstration placed old problems in their true perspective—for example, the geographical distribution of infective diseases, their epidemic and endemic occurrence, the relation between variations in the incidence of infective diseases and, for example, water supply, density of population, rainfall, ground-water, or season. In the case of cancer those who have a serious interest in statistics have not yet advanced from the state of empiricism in which the student of the infective diseases compiled statistics in the days before Pasteur and Koch. It is unjust to minimize the value of the accurate statistics based on the available data, for in our ignorance we do not know that the statistical method has reached its limitations; but only that it is still of the greatest assistance in helping us to define the objective of our experimental studies.

"The increased number of deaths recorded from cancer, its apparent greater frequency in some geographical areas (whether large or small) than others, the assumed importance or unimportance of the influences of race, diet, soil, climate, are all problems of much less importance than, for example, the established fact that cancer increases in frequency as age advances in man and animals and the infective or non-infective nature of cancer. Still it may not be forgotten it was impossible for statistics to supply the proofs of the causes of diseases now known to depend on infective organisms, and it is in all probability as much without the province of statistics to supply the answer to these questions as it is for them to yield a reply to the still more direct question, What is the cause of cancer?

"The occurrence of cancer in association with chronic irritation has long been recognized, and has led to conceptions of the nature of the disease more or less out of accord with the hypothesis of a congenital origin as a general explanation of *all* forms of cancer. The facts recorded above seem to show that the different forms of irritation, although they have in themselves nothing in common, are of more moment than the sites to which they are applied. If the hypothesis of a congenital origin is to hold good for the various instances mentioned in the preceding pages, then it becomes necessary to postulate further a uniform and abundant distribution of 'embryonic rests' over the body, or to assume a different distribution of 'embryonic rests' in Europeans and native races, coinciding with the points they respectively select for the indulgence of various practices involving the application of peculiar irritations. The facts directly refute such a view of the congenital origin of those forms of cancer to which reference has been made above, as developing in consequence of such native customs as, for example, wearing the kangri or chewing betel-nut. The same remarks apply also to other better known forms of cancer associated with chronic irritation, for example, chimney sweep's cancer, and to still less known forms, for example, brand-cancer, and 'horn-core' in cattle. The difference in the organ incidence of cancer between Europeans and the natives of Kashmir or India and Ceylon is that in Kashmir the abdominal wall is irritated by the kangri, and the buccal mucous membrane of women in Ceylon and India generally, by chewing betel-nut—it is not in all probability a different distribution of hypothetical 'embryonic rests' from that obtaining in Europeans. To these observations

[1] London, 1908.

and inductions we are now able to add others drawn directly from experiments on animals, and later on in this report Dr. Haaland will describe the experimental development of sarcomata in mice, under circumstances which appear to throw much light on the reasons why cancer develops in association with continuous or intermittent efforts at repair and regeneration. Although at the present time it is necessary to write with great reserve in directly applying the results of experiments to the etiology of cancer in man, nevertheless their bearing on the mediate causative relation obtaining between the chronic irritants cited above and the onset of cancer is one of the most suggestive results yet attained."

Pitch Cancer.

Dr. T. M. Legge, of the Home Office, has been studying the disease peculiar to pitch workers, and known generally as fuel-workers' cancer; his report was referred to in the JOURNAL of June 4th, 1910, p. 1370. Dr. Legge found that there was a general consensus of opinion among medical men, employers, and employed that attention to the body was an almost certain safeguard against the more malignant form of the disease amongst briquette workers. At present there is no accommodation for washing and baths at any of the works. He pointed out that the risk to men engaged in digging or shovelling pitch, in handling briquettes, or in work exposing them to dust in their manufacture would be reasonably met by the requirement of a bath every alternate day, coupled with arrangements enabling them on the other days to wash the face, arms, and chest. No arrangement of baths in factories would be complete without a corresponding provision for change of clothing, as the benefit of bathing would be neutralized were the working clothes to be donned immediately after. Several workmen said that were this provided they would have two sets of clothes—one for work and the other for going home in. A point to be considered for the first time is what standard of bath accommodation should the department lay down in circumstances where this is the main preventive measure recommended, and where it would be well that the majority of the workers should bathe in much the same way as under many regulations they are now enjoined to wash. So far the department has concerned itself only with baths as in the manufacture of white lead, electric accumulators, and nitro and amido derivatives of benzine, to be taken by a limited number of workers once a week, and the requirement "sufficient and suitable" has met the case. Clearly method, system, and supervision will do much by proper marshalling of workers, attention to detail in arrangements for dressing and undressing, to reduce the time bathing will take.

Dr. Legge recommended that the standard of bath accommodation should be one for every five persons handling briquettes or exposed to dust in its manufacture. Washing accommodation should be on the same scale. Overall suits should be produced by the occupier. Referring to the prevention of dust, Dr. Legge says:

"Although actual inhalation of the dust produced in quantities by the open elevators may not be followed by serious consequences to the lungs, its diminution, as shown by the conditions found, lessens occurrence of nails and skin affection. Hence the point is dealt with in the recommendations by a requirement to encase, as far as possible, the disintegration and elevators."

According to the *South Wales Daily Post*, the recommendations are met with by much favour by the workers; but that is not the case with the employers. The Home Office, however, is determined to check the spread of a malady which even now is by no means too clear to them.

On July 14th, Dr. Whitelegge and Dr. Legge, the Home Office Inspectors, met at Whitehall a deputation from South Wales fuel workers in connexion with the proposed regulations for the prevention of disease amongst the men. The conference was between Mr. Ben Tillett, of the Dockers' Union, Mr. W. Thorne, M.P., Councillor Merrills, and Mr. James Aherne. The proposed main regulations considered were the provision of baths and washing accommodation, as well as a change of clothing. The deputation informed the Home Office Inspectors that if provision were made in these respects there seemed little doubt that a very high percentage of the trouble would be eliminated, if not altogether stopped. The men's representatives pointed out that they were willing to co-operate with the employers in this matter, and Councillor Merrills, the district official representative of the Dockers' Union at Swansea, said he could endorse the men's desire to try and stop altogether this unfortunate disease. A few days before, a meeting of the men had been held, and they all agreed that the steps suggested in regard to increased bathing accommodation and changes of clothing were absolutely necessary to protect them. The deputation took exception to some small matters of detail, but in the end adopted the draft of the new regulations.

In the *Province Médicale* of June 12th, 1909, there was published a clinical lecture by Professor C. Audry, Professor of Dermatology in the University of Toulouse, on the epithelioma of pitch workers. After referring to the scrotal cancer of sweeps, he says that it was not till 1873 that Volkmann brought epithelioma of the scrotum, which he had studied on workers in pitch and paraffin, into relation with sweep's cancer. The dermatosis caused by prolonged contact of the skin, says Audry, with the dust or vapour of the irritant (pitch, paraffin, etc.) does not originate suddenly. A pre-epitheliomatous stage has been described by Volkmann. After an inflammatory period, the integument becomes dry and pigmentary spots appear. Elevations, sometimes like masses of senile dirt, sometimes definitely warty, appear. At this time a change of occupation may be sufficient to arrest the evolution of these benign neoplasms. O. Ehrmann has seen 25 to 30 cases in workmen engaged in the manufacture of briquettes. The phenomena were browning of the skin and of the sclerotic comedones, hyperkeratosic and papillomatous formations on the hands. The comedones were probably due to simple obliteration of the follicles by the pitch. The cancer of pitch workers is usually easily curable; sometimes, however, this is not the case. Reference is made to an observation by Tillman on a workman, aged 49, who had worked since the age of 12 years in a paraffin factory, and in whom, when the new growth of the scrotum seemed to have been completely cured, amputation of the arm with total extirpation of the axillary glands had to be performed. In a case described by Zweig, a person from whom warty growths of the face, the hand, and the scrotum had twice been successfully removed, died of a recurrence in the antrum of Highmore. The localization of the lesion in the scrotum is undoubtedly due to the rugose structure of the skin in that situation and to the consequent difficulty of washing away the pitch from the place. Hence the vital importance of rigorous cleanliness.

THE BATTLE OF THE CLUBS IN BELGIUM.

THE battle between the medical profession in Belgium and the sick clubs that have provided medical attendance for their members is now being waged in a most vigorous fashion by the "Cercle Médical" of Antwerp and district, which is a professional society having a legal status, and we are indebted to Dr. Brandligt, the Secretary, for sending through Dr. J. H. Taylor, of Salford, full particulars of an organization which has been successful in improving the general conditions of medical practice in the Antwerp district during the last two years. Dr. Brandligt writes as follows:

In Antwerp and in Belgium generally, the wage-earning classes are by nature provident and the greater number of the workmen are members of benefit societies known as "Mutuelles." The medical men whose services are requisitioned by the societies are quite inadequately remunerated, owing to the strong competition between practitioners and the comparative weakness of the medical associations which are local rather than national. In Antwerp the medical association has fortunately been strengthened by the practically unanimous adhesion of the medical body, and is thus able to dominate the position to a greater extent than obtains elsewhere in the country; the medical service in connexion with the benefit societies is more strictly regulated. The end in view is not in any way the abolition of these benefit societies; they are required to adequately remunerate the profession for the services rendered, and it is hoped to obtain perfect liberty of choice of doctor, so that members may be in a position to call in whomsoever they wish, under certain restrictions. Moreover, the members are subject to a certain amount of supervision in order to avoid the use of this medical service on a reduced scale by those whose social position does not warrant it.

The Antwerp "Cercle Médical," a professional union having a legal status, has inaugurated a system under which the

benefit societies are not only able to arrange medical attendance for members figuring on their sick lists, but may and do leave to such members from a list of about 100 doctors supplied by the "Cercle Médical" an open choice as to the practitioner whom they desire to call in case of sickness, and this system has given excellent results. The workman (wage earner) chooses his doctor for a period of not less than twelve months and is not permitted to make a change during this period unless change of residence should render it necessary. The fees paid are based on an adequate scale, and the medical man is interested in the careful treatment of his patients in order to continue the contract at the expiry of the twelve months first arranged.

To avoid the risks of practitioners making rebate arrangements with such benefit societies, the Cercle Médical itself receives all payments and remits the fees to those entitled to them.

In order to oblige the societies in question to enter into an agreement with the Cercle Médical, the latter has made arrangements with the pharmaceutical chemists for united action, and all agreements are now made in concert. The benefit societies have to accept the regulations imposed, for if they refuse the medical and pharmaceutical service is denied them.

Besides these societies there are free hospitals and benevolent organizations. The law obliges each "commune" to grant gratuitous medical and pharmaceutical aid to those whose means preclude their paying therefor, and the medical men rendering such services are under this law properly indemnified by the communal authorities.

In Belgium the medical associations have decided against sickness insurance for the following reasons:

1. On principle it is undesirable that money should be earned by middlemen at the expense of the practitioner.

2. These sickness insurance societies become too powerful, and the medical associations are no longer able to resist the reduction of fees. In such circumstances the inordinately large number of members of the insurance societies makes it impossible to give each of them the care necessary. This result is morally prejudicial to the profession in general.

3. In Antwerp these sickness insurance societies have frequently tried to obtain a footing; but determined opposition has been made thereto, dictated by results in Holland, more especially in the city of Amsterdam. In fact, in that city these societies have become so powerful that very few indeed of the practitioners are, or can afford to be, independent of them; the scale of fees is in consequence ridiculously low.

It is believed to be a serious curtailment of professional independence to make the medical man an employee of the State; and when the State shall insure all wage earners, or shall oblige all such to insure against sickness, as is the case in Germany, the profession is then exposed to the risk of a still further reduction of fees, is it not? Furthermore, could the growth of this insurance habit be impeded or arrested? Would it not infiltrate among the middle classes as well?

Mutual benefit societies for wage earners in which either the society itself pays the doctor or pays a certain amount to its members in case of sickness are undoubtedly useful. But agreements must be made with them as is done in Antwerp, otherwise attendance at reduced fees would be the inevitable result.

Looking at the question both from a moral and a financial point of view, it is believed that sickness insurance, either by private companies or by the State, is not desirable. By all means admit the utility of the mutual benefit societies, but subject them to sufficiently stringent regulations, making them subservient to the medical associations. This is all that is necessary.

Cercle Médical d'Anvers et faubourgs,
Union Professionnelle Reconnue
(D. Brandligt, Secretaire).

In addition to this personal communication, Dr. Brandligt sends several numbers of the *Bulletin Officiel de la Fédération Médicale Belge* and the *Bulletin Officiel du Cercle Médical d'Anvers*, with a form of contract which is entered into between the Cercle Médical and the individual practitioners of Antwerp, and the tariff of medical fees adopted. In view of the possible formation of a centrally organized and directed public medical service under the auspices of the British Medical Association, some of the following details may be of use.

Dr. Edouard d'Haenens, President of the Cercle Médical, points out that in Antwerp, as in other places, side by side with medical men who are devoted to the interests of the profession, and who voluntarily accept the discipline of professional organizations, there are (*a*) medical men who are neutral and indifferent, (*b*) men who claim freedom to do as they like, (*c*) men who are ready at the first opportunity to "pass to the other side of the barrier," and (*d*) men who are openly bad and take a pleasure in destroying the work of their confrères. All these four classes are a source of danger to professional union, and in order to mark them out the Cercle Médical has drawn up a form of contract to be signed by members and non-members alike, in which the signatories bind themselves under certain penalties not to give their services at reduced fees without the consent of the Cercle Médical. The Cercle Médical also on its side agrees to defend the interests of the signatories, and to indemnify them against loss. This contract has been signed by 298 practitioners out of a possible 314, several of those not signing being retired from practice. A "mixed committee" has been formed, composed of delegates of the Cercle Médical and delegates of the Society of Pharmacy of Antwerp, and its business is to act as intermediary between medical men and pharmacists on the one hand and the "sociétés de secours mutuel" on the other hand, and to fix in co-operation the scale of fees. The Mixed Committee may also regulate the relations between doctors and chemists, and has done much good work in waging war against charlatans and various forms of unqualified practice. It acts by sending reports to the "Commission Médicale Provinciale," or giving information to the Public Prosecutor.

The essential parts of the contract referred to between the Cercle Médical and individual practitioners may be summarized as follows: It first sets forth the reasons why some form of agreement is necessary to prevent the exploitation of the profession by the "mutuelles." Among other reasons it is stated that some of the "mutuelles" have only paid their doctors at the rate of 1 fr. per year or per family, and that the enormous number of patients that a single doctor may have to attend prevents anything like skilled or careful attention. The signatories, therefore, agree as follows:

Article 1. Henceforth no signatory shall give his services to any workmen's society, works, warehouse, or sickness insurance society (the public services excepted) for a lump sum payment or for reduced fees, except on the basis of the rules of the Cercle Médical and the Mixed Committee.

Article 2. The remuneration for medical services will be fixed by agreement between the Mixed Committee and the various societies.

Article 3. Signatories already under agreement with Mutuelles promise to communicate the terms of their contract to the Mixed Committee, which will eventually compel the societies to raise the remuneration in accordance with the value of the services rendered, and the tariff fixed by the Cercle Médical.

Article 4. No signatory shall accept any vacant post in any society without the written authority first obtained of the Cercle Médical under a penalty of 1,000 francs. If a signatory does not give up such a post within three months after he has been ordered to do so by the Cercle Médical, he shall be liable to a further penalty of 5,000 francs. If, after another three months' notice, he again fail to give up the post, a penalty of 10,000 francs will be imposed, after which he will be refused professional recognition ("mis au ban du corps médical"). These sums will not be reduced under any pretext.

It is further provided that part of the indemnities paid by defaulters shall go to the practitioners who are injured, and the rest to the account of the Cercle Médical, which binds itself to recoup any practitioner for loss sustained through carrying out the orders of the Cercle Médical up to a total of 5,000 fr. Provision, too, is made in case of disputes for arbitrators, whose decision shall be final. This contract is binding for five years, and is renewable. It is signed in duplicate, one copy being kept by the Cercle Médical, and the other by the President of the Provincial Medical Commission.

Each signatory receives a "Carte de Membre" in the shape of a small booklet, on the first page of which is the member's name, the seal of the Cercle Médical, and a receipt for the subscription. Following pages contain a list of minimum fees to be charged, and in order to make the tariff known to the public, notices are inserted in the political journals stating that the tariff has been established by and in the name of the Cercle Médical. The tariff is said to have been fully accepted by the public. At the head of the list of fees are notes stating that, in fixing them, regard has been paid to the importance of the services rendered, the dangers run by the doctors, the social position of the patients, and the number and importance of the visits made. The appreciation of these differences has largely to be left to the conscience of the doctors. The fees named are the minima, and the doctor has a right to a higher fee for saving the life of a patient than when his work is only the relief of a chronic and incurable case. When the doctor visits and gives advice to several members of the same family he is to reckon as many visits as he has seen patients. Three classes of patients are named—lower,

middle, and upper—according to their social position, and the tariff in each case is as follows:

A.—*Visits.*

	Lower Class.	Middle Class.	Upper Class.
	Frs.	Frs.	Frs.
Day visit	2	3	5
Morning visit from 6 a.m. to 8 a.m., and evening 7 p.m. to 11 p.m.	4	6	10
Sundays and holidays after midday	4	6	15
Night visits, 11 p.m. to 6 a.m. in summer, and 11 p.m. to 7 a.m. in winter	5	10 to 15	25
Prolonged visits in interest of patient, per hour	5	10 to 15	25

B.—*Consultations at Doctor's Home.*

	Lower Class.	Middle Class.	Upper Class.
	Frs.	Frs.	Frs.
Ordinary verbal consultation	2	3	5
Simple medical advice in writing...	3	6	10

Detailed report on state of health of patient, 25 to 50 fr.

C.—*Consultations between Medical Men.*

	Lower Class.	Middle Class.	Upper Class.
	Frs.	Frs.	Frs.
By day	10	15	25
By night (night hours as above)	10	25	50

With a medical man not resident in the town, 30 fr. minimum.

D.—*Minor Surgery.*

Ordinary dressings, speculum, tooth extraction, vaccination, etc., to be reckoned at the least at double the charge for an ordinary visit.

E.—*Confinements.*

	Lower Class.	Middle Class.	Upper Class.
	Frs.	Frs.	Frs.
Simple natural labour	30	50	100
Instrumental labour	40	60	150
Tedious labour	40	60	150
Assistance given to a midwife in tedious labour	20	25	—
Miscarriages beyond the first half of pregnancy	25	50	100

The fees include one visit per day during the nine days following labour. In case a second medical man has to be called in he will have a right to half the fee allowed to the first, and the fee of the second shall not be less than 20 fr.

A scale of charges is also given for certificates of various kinds, ranging from 2 fr. for a simple "sick note" to 20 fr. for more detailed certificates. For *post-mortem* examinations the fee is 100 fr. minimum.

A scale for life insurance examinations is also given. The fees for examination for insurance are as follows:

Up to 500 fr.	2 fr.
From 500 to 2,000 fr.	3 ,,
,, 2,000 to 5,000 fr.	5 ,,
,, 5,000 to 20,000 fr.	20 ,,
Per thousand above 20,000 fr.	1 ,,

Special fees are charged for attendance on sea going vessels or steamers and tenders on the Rhine.

Fees for Cases where Summoned by the Police.

Visit and first aid with certificate ...	6 fr.
Visit comprising more important attention or needing special dressings ...	10 ,,
Examination and certification of death in police cases	12 ,,

All these fees in police cases will be doubled if a whole hour at least is occupied, or if the visit be between 10 p.m. and 7 a.m. Any departure from these fees in police cases must be justified in the report to be sent to the Hôtel de Ville within a month.

The tariff contains no provision for serious surgical cases or operations, which are apparently left to private arrangements. There seems to have been very little difficulty in obtaining these fees when once it became known that the profession was united and that the tariff had been definitely fixed by the Cercle Médical, and, as a result, Dr. d'Haenens notes that within the last two years the fee for a visit for the lower class has been raised from 1.50 to 2 fr., the fee for visits between 7 p.m. and 11 p.m. has been doubled, that for night visits has been trebled, and that for visits after midday on Sundays and holidays has been doubled. Moreover, though new "Mutuelles" are still being established, they no longer create a medical service of their own, but are content with providing sick pay for their members and leaving the provision of medical aid to the Cercle Médical.

In addition to fixing a tariff and obtaining agreement between medical men to resist exploitation by the "Mutuelles," the Cercle Médical undertakes the collection of doctors' accounts at a lower commission than is charged by ordinary agents, and by undertaking this it has been able to form a "black list," which is at the service of the members.

The attempts to obtain a uniform scale of fees for life insurance examinations have met with much success, and the Cercle Médical has been able to prevent the societies engaging medical examiners at reduced fees. Other matters with which it has dealt are hospital abuse, advertising by medical men, unqualified practice of all sorts, medical appointments under public bodies, and legislation on matters affecting the profession; and to deal more effectively on a national scale with these matters there is the Belgian Medical Federation, to which many of the local medical societies are affiliated.

With regard to sickness insurance societies, the Cercle Médical would prefer to have nothing to do with clubs like the Krankenkassen of Germany. At present Belgium has not got compulsory State sickness insurance, as the Belgian Caisse de Retraites Ouvrières is only a voluntary fund for providing old age and invalidity pensions, subsidized by the State. Beyond all doubt the Antwerp practitioners have every reason to fear any State system that involves anything like the German Krankenkassen, but it is not easy to see why, if sickness insurance were made compulsory, the Cercle Médical should not be quite as well able to make satisfactory terms with a State insurance department as it has done with the Mutuelles, especially as a State department should hardly have the same incentives to exploit the profession as private companies, coming in as middlemen, would seem to have. That, however, as Dr. Brandligt points out, is not the opinion of the Cercle Médical of Antwerp, which is opposed to sickness insurance either by private companies or by the State.

One thing stands out very clearly from this account of the Cercle Médical, namely, that it only requires union in the profession to obtain satisfactory terms from clubs.

Up to the present the English friendly societies have absolutely refused to impose a wage limit, and medical men have been compelled, owing to their own want of union, to give their services at a charity rate of about 4s. per year to many members who could well afford to pay ordinary fees. This difficulty is got over by the Antwerp Cercle Médical by dividing the members of the Mutuelles into three classes paying different rates, as shown in the above tariff, according to their social position and means.

One other point: The Antwerp medical men are paid per visit or consultation for the "Mutuelle" cases, and the patients have a choice of doctor, while, to prevent abuse, the fees are received by the Cercle Médical itself, and are then distributed to the individual practitioners according to work done. The Mutuelles have been compelled to accept this arrangement, and we are told that the public has acquiesced.

THE twenty-third annual meeting of the French Surgical Congress will open this year in Paris on October 3rd. The questions proposed for discussion are: The surgical treatment of exophthalmic goitre; the surgical treatment of duodenal ulcer; the immediate and remote results of operative methods of treatment of varicose veins of the lower limbs.

THE HISTORY OF INOCULATION.

DR. CHARLES F. FORSHAW, M.D.Chicago, F.R.Hist.S., writes under date August 24th:

Last week-end I spent at Kibworth, a large village about ten miles from Leicester, and on the western wall of the church I found a wooden mural tablet, upon which was engraved the following inscription:

In Memory of
Mr. Lewis Paul Williams, Surgeon.
He departed this life January 9th, 1771,
In his 40th year.
He was the first that introduced into practice
Inoculation without Preparation into this Kingdom.

Is the above historically correct, and can any reader give particulars of the career of this Mr. Williams? I may say that I have asked many old residents of Kibworth about this tablet, but not one had previously heard of it.

PS.—I may add that the top of the tablet contains many medical emblems, such as the serpent, the retort, a flaming heart, etc.

We can find no mention of Mr. Lewis Paul Williams in the *Dictionary of National Biography*, or in the great *History of Medicine* by Sprengel, who deals fully with inoculation. But as Mr. Williams died in 1771 and inoculation was described by a surgeon named Kennedy in an *Essay* published in London in 1715, we do not think the claim made on his behalf in the epitaph quoted can be substantiated, unless some esoteric meaning is attached to the words "without preparation." Inoculation was commonly practised among the Greeks in Constantinople at the beginning of the eighteenth century. Carburi of Cephalonia says the method was in use in his country, and "buying the small-pox" was a familiar practice in some parts of the Highlands of Scotland and in Wales long before it was brought to the notice of the medical profession. According to Alexander Monro the disease was conveyed by means of linen threads steeped in variolous matter which were tied round the wrist. In China in the sixteenth century "small-pox was sown" by introducing crusts from small-pox pustules into the nasal passages of young children. A full account of the procedure is given by the Jesuit missionary, d'Entrecolles, in the *Lettres Edifiantes et Curieuses* under the date 1726. Emanuel Timoni, a physician of Constantinople, described inoculation in 1714, and there are other accounts by Giacomo Pylarini, Venetian Consul at Smyrna, and Samuel Skraggenstierna, Physician to the King of Sweden. The introduction of small-pox inoculation into this country, however, was due to Lady Mary Wortley Montagu, whose husband was Ambassador to the Sublime Porte. Writing to "Mrs. S. C." from Adrianople on April 1st, 1717, she says:

A propos of distempers, I am going to tell you a thing that will make you wish yourself here. The small-pox, so fatal, and so general amongst us, is here entirely harmless by the invention of *ingrafting*, which is the term they give it. There is a set of old women who make it their business to perform the operation every autumn, in the month of September, when the great heat is abated. People send to one another to know if any of their family has a mind to have the small-pox; they make parties for this purpose, and when they are met (commonly fifteen or sixteen together), the old woman comes with a nut-shell full of the matter of the best sort of small-pox, and asks what vein you please to have opened. She immediately rips open that you offer to her with a large needle (which gives you no more pain than a common scratch), and puts into the vein as much matter as can lye upon the head of her needle, and after that binds up the little wound with a hollow bit of shell; and in this manner opens four or five veins. The Grecians have commonly the superstition of opening one in the middle of the forehead, one in each arm, and one on the breast, to mark the sign of the cross; but this has a very ill effect, all these wounds leaving little scars, and is not done by those that are not superstitious, who choose to have them in the legs, or that part of the arm that is concealed. The children or young patients play together all the rest of the day, and are in perfect health to the eighth. Then the fever begins to seize them, and they keep their beds two days, very seldom three. They have very rarely above twenty or thirty in their faces, which never mark; and in eight days' time they are as well as before their illness. Where they are wounded, there remain running sores during the distemper, which I don't doubt is a great relief to it. Every year thousands undergo this operation; and the French embassador says pleasantly, that they take the small-pox here by way of diversion, as they take the waters in other countries. There is no example of any one that has died in it; and you may believe I am well satisfied of the safety of this experiment, since I intend to try it on my dear little son. I am patriot enough to take pains to bring this useful invention into fashion in England; and I should not fail to write to some of our doctors very particularly about it, if I knew any one of them that I thought had virtue enough to destroy such a considerable branch of their revenue for the good of mankind. But that distemper is too beneficial to them, not to expose to all their resentment the hardy wight that should undertake to put an end to it. Perhaps, if I live to return, I may, however, have courage to war with them. Upon this occasion admire the heroism in the heart of your friend, etc.

Maitland, the surgeon to the British Embassy, inoculated Lady Mary's son in 1717. Her infant daughter was inoculated in England in 1721, the event exciting the greatest interest in fashionable as well as in medical circles. It was not, however, till the method had been successfully tried on some condemned criminals in Newgate that people's minds were reassured as to the safety of the practice. In 1722 the Princess of Wales had her two daughters inoculated, and this went far to remove prejudice. Still, however, there was a great deal of opposition to inoculation; doctors called it "an artificial way of depopulating a country" and "a barbarous and dangerous invention," while more temperate controversialists pelted each other with statistics. Of course the parsons preached against it as the work of the Devil. As specimens of theological virulence we quote a few passages from a sermon "against the Dangerous and Sinful Practice of Inoculation, preached at St. Andrew's, Holborn, on Sunday, July the 8th, 1722, by Edmund Massey, M.A., Lecturer of St. Alban Woodstreet."* The preacher took for his text Job ii, 7, "So went Satan forth from the Presence of the Lord, and smote Job with sore Boils, from the sole of his Foot unto his Crown." After describing how the Enemy of Mankind was baffled in his first attempt to shake the faith and patience of Holy Job, and his getting permission to try the effect of bodily pain and loss of health, the enlightened divine goes on to say that the Devil was the first inoculator.

The silence of Scripture hath given Interpreters occasion of guessing at the Distemper which the Devil here inflicted upon Job; But among them all, it appears not certainly what it was. I will therefore desire to give an Opinion, equally I think true, with any that hath yet been taken notice of: It is this, that the Devil by some *venomous Infusion* into the Body of Job, might raise his Blood to such a Ferment, as threw out a *Confluence* of *inflammatory Pustules* all over him, from Head to Foot: That is, his Distemper might be what it is now incident to most Men, and perhaps conveyed to him by some such way as that of *Inoculation*. I do not at present see what can be advanced to invalidate this Supposition, which I look upon to be as tenable as any that is extant about this matter; having this additional Advantage, that the Scene of Action lies in those parts of the world whence this Practice is *Confessedly* derived.

The preacher next inquires how the Evil One was foiled in his designs. He says:

In order to do this, it is not at all improbable to suppose that the Holy Man might duly consider these two Points.

First, For what Causes Diseasss are sent amongst Mankind.

Secondly, who is it that has the Power of inflicting them. Let us then accompany him in the first Place, in finding out the Causes why Diseases are sent amongst Mankind. I take them to be principally two: Either for the Trial of our Faith or for the Punishment of our Sins.

* * * * *

This also gives us to consider, that Diseases are not only *judicially* inflicted for past offences, but graciously also designed to *prevent* future: and a little Recollection will tell a Man, whether he has not often been kept Virtuous through fear of the consequences, even when Inclination has gotten the better of his Duty . . . So that we see the worst of Evils have their Use, and in this Sense, and by proper Reflexion, we may make a Moral of the Devil himself. Should all Restraints of this Sort be taken away, were there no fear of Punishment in this Life, nor belief of any in the next; should . . . Health be Handmaid to Uncleanness; we may conjecture from Present Disorders, how mightily they would encrease.

Passing to his "secondly" the preacher proceeds to consider who is that hath the Power of inflicting Diseases upon us:

Our Text indeed ascribed Job's Distemper to the Power of the Devil; but the foregoing Verse shews *that Power* to have been delegated to him, and limited by Almighty God, who alone being Omnipotent, the Powers that be, whether *Natural* or *Political*, must all be derived from him.

* * * * *

I chuse to instance in the Infliction of Diseases, which will attempt to prove are utterly unlawful to be inflicted, by any who profess themselves Christians. Indeed, where the Doctrines of Salvation are not known, and a regular Dependence upon Providence is postponed to the absurd belief of a *Fatality*;

* London: Printed for William Meadows, at the Angel in Cornhill. 1722. Price 6d.

there is no wonder to see Men give into impious, unreasonable Practices, but in a Country where Principles are *established*, where God's government of the World is for the most Part undisputed, and slavish, implicit Belief happily superseded by rational Enquiries; in such a place, methinks, Men cannot easily be reconciled to a *Practice*, which abuses their *Understanding*, as well as insults their *Religion;* and if the received Notions of God's Providence be just, has its Foundation in *Ignorance*, and must be maintained (if at all) by *Presumption*. The Holy Scriptures give us frequent Instances of God's giving Power unto them to *heal Diseases;* and by his Blessing a Power is still continued: But that one was ever granted to *inflict Diseases*, will I think hardly appear; unless in the case of Moses with the Egyptians, and Elisha with his Servant Gehazi: But both these cases were miraculous . . . and cannot be drawn into Precedent by any not invested with the same Character and Authority. Men may, and have, invented Wracks and Tortures for each other, but no Man, let his Crimes be what they will, was ever yet condemned to an immediate sickness, or sentenced to lie languishing in a Fever, for want of a sufficient Authority, which no Body but a present Set of *adventurous Practitioners* have of late pretended to assume.

It will easily be granted, therefore, that such a Procedure, for want of a *competent Authority*, is unlawful: That if Diseases, as beforementioned, are sent unto us for the *Trial of our Faith*, or the *Punishment of our Sins;* He alone to whom our Faith must *approve* it self, and our *Sins* are *manifest*, has *properly* the Power of inflicting them.

Remembering then our Text, I shall not scruple to call that a *Diabolical Operation*, which usurps an Authority founded neither in the Laws of *Nature* or *Religion*, which tends in this case to anticipate and banish *Providence* out of the world, and promotes the encrease of *Vice* and Immorality. That a modern Practice has a direct tendency to all this, I offer the following considerations to evince—

I. A *Natural* or *Physical* Power does not always infer a *Moral* one: That is to say, a Man cannot *lawfully* do every Thing that is in his *Power* to do. . . . Now the Apostle forbids us to do *Evil* (Rom. 3, 8) tho' "Good should come of it," upon Pain of Damnation, which absolutely prohibits all unjustifiable Arts and Practices, be the event never so beneficial and desirable; so that although we have a Power to give a Man a Disease, that is, tho' we know the way how it may be done; since a bare *Power* or *knowledge*, does not infer the *Morality* of so doing; . . we ought to forbear all experiments of that sort: For even *Uncertainty* and doubting in moral or religious Cases, lays a positive, or at least a Prudent *Restraint* upon Practice, because, as the Apostle says (Rom., 14, ult.), "What is not of Faith, is Sin." . . . The good of Mankind . . . is I know, pleaded in Defence of the *Practice* I contend against: But I must profess myself at a Loss, to find or understand, how *that* has been, or can be promoted hereby: For if by *good* be meant the *Preservation of Life*, it is in the first place a question, Whether *Life* be a *good*, or not?

But if it be, the Preservation of it will be found as little beholden to *this Practice* as any other Invention whatsoever. The confessed miscarriages of this new Method, are more than have happened in the ordinary Way: and if this be our Case now, how much worse must it needs prove, if God for our *Presumption and contemptuous Distrust* of his good Providence, should suffer this Delusion to gain ground, and these "Physicians of no value, these Forgers of lies, (as Job expresses it)—Job, 13, 4—to obtain and grow into credit among us: Such I fear they may be accounted, who so confidently tell us what is impossible for them to know; namely, that "they who undergo their Experiment are for ever thereby secured from any future Danger and Infection."

This is a bold assertion indeed, and if such Experiments were *lawful* and consistent with the Rules of *Christian Practice*, I could wish to God it were true also: But if neither of these be the Case if the two Requisited, *Prevention and Lawfulness* be wanting; I believe I may venture to affirm, that the most learned and judicious among the *Professors* of Physick will never give into so destructive a scheme—And I hope the Time is coming that these "Venefici," these "Spreaders of Infection," will be distinguished from those of the *Faculty* who *deserve honour*, and not permitted to mingle with them, as the Devil (Job, 2, 1) among the Sons of God, left like the *Disease-giving* Practitioner, the Harlot whom Solomon (Prov., 7, 23) describes, they "entice us, till a Dart strike through our Liver, and we haste to their snare, not knowing that it is for our Life." Besides, I cannot apprehend how it conduces to the *Preservation* of Mankind, to force a dangerous Distemper upon them, which possibly may *never* happen unto them, and if it should, may *probably* be attended with very *little*, if any Incinvenience; and as before has been hinted, is no Security against *future* contagion. This is unequally to stake a Substance against a Shadow, to make Men run into a real Danger, lest they should happen to fall into an accidental One, and contributes no more to the *Preservation* of Mankind than it would redound to the *Honour* of a well provided City, to invite the Enemy and surrender *now*, for fear lest *sometime hence*, they should possibly be surprised and taken. . . . I look upon this matter to be forbidden by the *Sixth Commandment*. . . . For it is always to be supposed, that a Law which forbids a great Evil, forbids also every Thing that has a Tendency thereto, for which Reason the very next Chapter forbids (Exod. 21) all "voluntary and causeless Wounding, Mutilation," etc. Because these Things go often farther than they are designed, even to the taking away of Life: When this happens they are to be considered, as no other than a Breach of the Commandment: And it is but reasonable to imagine, that when God forbad to take away Life, He forbad also the Commission of any Violence, whereby Loss of Life might *probably* ensue . . . although the effect which follows (if mortal) is beside the *Intention*, yet the *Cause* of it being not so, is sufficient to make a Man guilty before God: Men being justly chargeable with those *effects*, which are the *natural* Results of those *inordinate* Actions from whence they proceed. . . .

There is nothing new under the sun, and those who now denounce vaccination and serumtherapy are but echoing the opinions so elegantly expressed by the Rev. Edmund Massey. He goes on to discuss the value of disease as a safeguard of virtue:

It remains now in the last place to speak of this Modern *Practice*, as it tends to promote *Vice* and Immorality. I believe it will be readily granted me, that there is no one Thing so universally dreaded as the Disease, which this *strange Method of Practice* pretends to elude. But there is this good attending, that the Fear of it is a *happy Restraint* upon many People, who . . . want no other Encouragement to give a loose to their than to be free from Apprehensions of this *uncertain Visitor*.

We ought then to look upon this, and all other Discouragements to Sin, with a thankful Eye, and bless that wise Providence which has mercifully set such checks upon Iniquity, that we may not run smoothly on unadmonished to our Ruin. Could then these *bold Practitioners* lessen the Severity of this Disease; could they entirely secure Men from Danger under it, could they say to the Distemper, as Almighty God does to the proud Waves of the Sea, "Hitherto shalt thou come, but no furtner" (Job xxxviii, 11). Could they, I say, do all this, I do not see what good Mankind would get in the Main; they would, 'tis true, have one Danger less to fear, but that would be no real kindness; forasmuch as it would be the Occasion of their running into a great many more, and if they should happen to be *more healthy*, 'tis a great chance but they would be *less Righteous*. If Security wou'd make them more diligent in their Callings, more just and honest in their Dealings; or if they would look upon it as a Mercy, and be thankful to God for the Enjoyment of it. . . . No doubt but Providence has a good and beneficial Design in all those Deaths, which we improperly call untimely; . . . What Reason then for this saving, this antiprovidential Project, this pretended Art of Preserving, which thus tends in a great Measure to prevent that religious Watchfulness, which Christianity, as a Warfare, requires? . . . And now upon the whole, what is all this Discourse, but a Persuasive to depend upon the good Pleasure of an all-wise God, rather than throw our selves into the Hands of *foolish and unskilful Men;* . . . A dangerous Experiment this! and not to be made with impunity, unless as we thus pretend to be *wiser*, we prove ourselves *mightier* than he. . . .

Let the *Atheist* then, and the *Scoffer* the *Heathen* and *Unbeliever*, disclaim a dependence upon Providence, dispute the Wisdom of God's Government, and deny Obedience to his Laws; Let them *Inoculate*, and be *Inoculated*, whose Hope is only in, and for *this Life!* But let us who are better instructed, look higher for Security, and seek principally *there* for Succour, where we acknowledge Omnipotence. Let us not sinfully endeavour to alter the course of Nature by any presumptuous Interposition: Let us bless God for the Afflictions which he sends upon us, and the Chastisements wherewith He intends to try or amend us.

Considering that nearly every adult man and woman had had small-pox in that day, it is not easy to see how they were to be kept from sin by fear of the disease. It was only innocent children in whom, for the most part, vice could have been promoted by inoculation! But Mr. Massey's sermon is interesting as an example of the perverse reasoning with which we are so familiar at the present day.

Inoculation slowly gained ground, and in 1746 a hospital for the inoculation of the poor was built in London. In 1754 two scions of royalty were inoculated, and the method received its scientific consecration in a pronouncement of the Royal College of Physicians of London. The enthusiasm of the public found a voice in a poet, of whose name we must sorrowfully confess our ignorance, who wrote a Pindaric Ode on the subject, commencing with the invocation, "Inoculation, heavenly maid!" Improvements in technique made inoculation less dangerous. Daniel Sutton and his assistants are said to have inoculated 20,000 cases without a single death that could "fairly" be attributed to the operation. Another famous inoculator was Dimsdale, who in 1768 was summoned to Russia to inoculate the Empress Catherine and her son, receiving for his services a fee of £10,000, with an annuity of £500, and the title of Baron, which is still held by his descendant. Inoculation also found favour in North and South America and in the West Indies. Inoculation was superseded by vaccination and finally forbidden by Act of Parliament in 1840.

THE following name has been added to the Commission of the Peace for the County of Lanark: John Harvieson, M.B., C.M., Lesmahagow.

SCIENCE NOTES.

AN interesting preliminary communication on "The Recognition of the Individual by Haemolytic Methods" was read before the Royal Society on June 16th. It is by Drs. Todd and White, of the Hygienic Institute, Cairo, and deals with some remarkable experiments. They were conducted on cattle used for the production of rinderpest serum. The fresh serum of these immunized animals was found to have practically no haemolytic action on the corpuscles of a normal ox, except when a small quantity of guinea-pig serum was added, when haemolysis took place very rapidly. Under these latter conditions the haemolytic power is very great, only one-hundredth of a cubic centimetre of the immunized serum being required to haemolyse 1 c.cm. of a 5 per cent. suspension of ox corpuscles. If now the serum of any one of these immunized animals be tested with the corpuscles of a number of other cattle, great variations in the haemolytic power in the different individuals is observed, some being highly susceptible, others almost unaffected. If the serum of a second immunized animal be similarly tested, corresponding variations are evidenced, but the variations do not coincide with those in the first case—that is to say, the susceptible individuals in the first case may be unaffected in the second, and vice versa. The same holds good for the serums from each of the immunized animals; there is the constant result of variation in susceptibility of the test individuals, but in no two cases do the variations coincide. The further experiment was then tried of injecting a normal Cyprus bull with the mixed serums of the immunized cattle. This serum had no haemolytic action on ox corpuscles *in vitro* unless an extraneous complement were added. The result of the injection, however, was that haemoglobinuria occurred, showing that a complement had been elaborated by the bull enabling haemolysis to take place. On testing the serum from the bull a few days later, it was found to possess no further haemolytic action on its own corpuscles, but it was still positive with the corpuscles of many other individuals. It is thus possible to "exhaust" the haemolytic action of an immune serum on the corpuscles of one particular individual while leaving it unaltered with regard to others. Similar experiments were repeated *in vitro* with the same results. By this means the serums of different immune animals were exhausted with the corpuscles of various individuals of the same species, and the haemolytic power of the serums so treated was studied on the corpuscles of different individuals. It was found that if an immune serum is exhausted with the corpuscles of one particular individual it loses its haemolytic power for other individuals as well as for that one, but remains haemolytic for many others. A second immune serum treated similarly shows differences analogous to those in the first experiment described. It is thus evident that the lysins which are formed depend on two distinct factors, namely, the individuality of the injected corpuscles and the individuality of the animal into which they are injected. From a consideration of these preliminary experiments, it follows that by taking a mixture of a sufficiently large number of immune serums and exhausting it with the corpuscles of a single individual it ought to be possible to obtain a serum which is specific for that individual—that is, which ought to have no haemolytic action on the corpuscles of that individual, but to be markedly haemolytic towards the corpuscles of all other individuals of the same species. This hypothesis was verified by actual experiment. The serums of sixty immune Egyptian cattle were mixed and the mixture exhausted with the corpuscles of a normal Cyprus bull. It was then tested on the corpuscles of the normal Cyprus bull, two other Cyprus cattle, and twenty immune Egyptian cattle. Complete haemolysis occurred in every case except that of the Cyprus bull. The "exhausted" serum was thus able to pick out quite sharply the corpuscles of one individual from those of twenty-two others. A second more extensive experiment was then undertaken with 110 different cattle, with the result that in every case complete haemolysis occurred except with the one which had been used in the process of exhaustion. This was confirmed by further experiments, the only case in which any discrepancy did occur being that in which the serum exhausted with the corpuscles of a cow was found to have lost its haemolytic action, not only for the corpuscles of the cow, but for those of its calf. At the same time, the serum exhausted with the corpuscles of the calf was specific for the calf. These results, which we have endeavoured to present as tersely as possible, are of extreme interest, not only from a haematological but also from a biological point of view. They tend to indicate that the individuality of an individual is not confined to the grosser anatomical characteristics, but is shared by the blood corpuscles and, it may be, by all the other cells in the body. It is also apparent, as the authors suggest, that this method might be put to use not only in identifying the cells of the individual, but also in investigating the laws of heredity and other important problems.

LITERARY NOTES.

IN his *Old and Odd Memories*, Mr. Lionel A. Tollemache refers to the "posthumous wanderings" of Louis XIV's heart. The facts were communicated to him by the late General Addison, who told him the Grand Monarque's heart now reposed in Westminster Abbey. How it got there is told in the following story, which may be too "strong" in more senses than one for the digestion of some readers. According to the General's account, the tomb of Louis XIV was rifled during the French Revolution, and his heart was offered for sale. It was eventually bought by Mr. Harcourt, then owner of Nuneham. Dean Buckland paid a visit to Mr. Harcourt, and the relic was shown to him. Being then on the extreme verge of imbecility, the famous geologist said that, when about to examine a curious stone, he first put it into his mouth; and to the astonishment of those present he put the shrunken heart into his mouth and inadvertently swallowed it. His death must have followed soon after his involuntary act of cannibalism, for the royal heart was still inside his body when he was taken to his last resting-place in the Abbey. General Addison added that this extraordinary story was vouched for by one of the owners of Nuneham, Mr. Tollemache thinks by the Rev. William Harcourt, the father of Sir William. The late Mr. Edward Harcourt, elder brother of Sir William, gave a kinsman of Mr. Tollemache a narrative of the affair substantially agreeing with the first part of that given him by the General. His authentic account confirms the foregoing version up to the point of the aged Dean's highly indigestible mouthful, but says nothing about the tragic sequel of the unwonted diet. In confirmation of this extraordinary narrative, Mr. Tollemache says that the Dean and his more celebrated son, Frank Buckland, used to apply what may be called the gustatory test to stones in an almost incredible fashion. The kinsman just cited as a witness, who is himself an F.R.S. of long standing, wrote to Mr. Tollemache as follows:

> It was related that in a cathedral (say Canterbury) the verger was wont to show visitors the stain on a marble tomb, still plainly visible, where the blood of a saint (say Thomas à Becket) had been spilt. When Dean Buckland was taken to this spot, instead of being content with looking and listening, he bent over and applied his tongue to the darkened surface, and exclaimed, as he raised himself, "Bat's dung, decidedly!"

Mr. Tollemache reports a good story told by Professor Thorold Rogers. When on a visit to the States the Professor was disgusted, as he steamed up the St. Lawrence, at seeing the magnificent cliffs deformed by an advertisement cut in gigantic letters, "Take Cockle's antibilious pills." On his return a month later his annoyance was tempered by amusement; for beneath was inscribed in equally bold characters, "and Prepare to meet thy God!" The second poster, he was informed, had been put there in all good faith by the agents of some religious society, and was not the counterblast of a rival firm of medicine vendors. Some wag must have added the fatal "and." The story reminds us of the notice put up on the hospital board by a famous physician, intimating to all whom it might concern that Professor —— would not lecture that day, having been called to attend Her Majesty. The effect of the notice was marred by the words "God Save the Queen!" written underneath by some profane jester.

In his interesting book, entitled *The Nine Days' Queen*, lately published by Methuen and Co., Mr. Richard Davey gives an interesting account of the diet of our forefathers of the sixteenth century. People, he says, rose and went

to bed earlier in Tudor days than we do now, especially in summer, when breakfast was served as early as six o'clock, dinner at ten, and supper at five. There was, of course, no tea nor coffee. The usual breakfast drink was light home-brewed ale. Such very young ladies as Lady Jane Grey, says Mr. Davey, would be served at this meal with a cup of hot milk, and sometimes with a sort of mead, or barley water, heated and spiced. During Lent, he says, breakfast consisted of bread, with salt fish, ling, turbot, eels, fresh whiting, sprats, beer, and wine. At other seasons there were chines of beef, roast breast of mutton, or boiled mutton, butter, cooked eggs, custard, pies, jellies, etc., as well as chickens, ducks, swan, geese, and game. Mr. Davey adds that all meals were somewhat disorderly, for, forks not being in general use, it was the custom for the gentlemen to pick the daintiest scraps out of the common dish with the tips of their fingers and place them gallantly upon the platters of the ladies seated nearest them. It was considered ill-bred to lick one's fingers after this act of courtesy. Proper behaviour was to wipe them daintily upon a sort of napkin or serviette, sometimes, as in Japan, made of tissue paper. In proportion to the amount of meat, very little bread was consumed. Mr. Davey quotes the Venetian Ambassador Giustiniani as saying:

> The English bolt their food in dead silence, and, bread being dear, eat very sparingly of it. They throw their chicken bones under the table when they have sucked them clean.

In a footnote it is stated that the company (that is, the household of the Earl of Surrey, afterwards Duke of Norfolk) was often regaled with boiled neck of mutton; and a very favourite dish appears to have been boiled capon with sauce and a roast breast of veal basted. Occasionally they indulged in rabbit-pie, and there was a bountiful supply of tarts, custards, and sweetmeats. . . . Of the sort of food provided for Lady Jane Grey and Lord Guildford Dudley during their imprisonment before their execution, the nature can only be surmised by consulting the bills of fare, still extant, provided for the Duchess of Somerset (widow of the Protector) during her imprisonment in the Tower. From the fact of the prices of the various dishes being appended, it may be concluded that the wealthier political prisoners were allowed to pay for their meals. Her Grace's bill for "dynner" was as follows:

Mutton stewed with pottage	viij d.
Beef boiled	viij d.
Veale, rost	x d.

'Supper" consisted of:

Slyced beef	vj d.
Mutton rost	viij d.
Bred	x d.
Bere	viij d.
Wyne	viij d.

At the recent Pharmaceutical Conference Dr. J. Reynolds Green, F.R.S., read a paper on Some old English Herbals in the Botanical Library at Cambridge. The paper was published in full in the *Pharmaceutical Journal* of July 30th. It appears that the *Grete Herbal*, which appeared in 1516, was the first serious publication on the subject in English, but its imperfections were great, and it was displaced by *A New Herbal*, by William Turner, the first English book, as the author says, which was worthy of mention. The herbals which appeared later, up to 1650, are described *seriatim*, Hows's *Phytologia Britannica* ending what was practically the period of the herbalists.

The power of the imagination in vitiating human testimony has seldom been more conspicuously displayed than in an instance recorded by the author of an article on chloroform published in *Household Words* of February 12th, 1859. It need be no secret now that the writer was the late Sir William Priestley. Anaesthesia was then in its infancy, and had many enemies to contend with. "When Dr. Simpson," says Priestley, "was first introducing anaesthetics into his special department of practice, he purposely abstained from employing any in the case of one particular lady for whom he had reason to anticipate coming evil. His fears were realized; for the patient, though escaping with life, made a most protracted recovery. The acquaintances of the lady, strong in opposition to the unnatural innovation then much talked of, and bent on regarding this as the source of the entire mischief, asserted that the quantity of the anaesthetic vapour which had been administered to their unfortunate friend was so great, that they felt the odour of it quite oppressive when calling to ask after her, even days after. The simple answer to all this was, that not a drop of the supposed agent had ever been in the house." It is sad to read that among the most bitter opponents of anaesthesia were members of the medical profession. One physician, we are told, condemned a remedy which made patients, as he put it, drunk and insensible. "Another asserted that pain was desirable and salutary, and that the expression of it should be regarded as a healthy indication. Even the chief of the army medical staff recommended the surgeons, during the Crimean war, not to use chloroform; as the pain inflicted by the knife was a wholesome stimulus, and its abolition likely to be injurious. Practitioners were found who did not hesitate to affirm that much which was said about suffering and agony was sentimental nonsense, and that doctors who pandered to the morbid tastes of dilettanti patients were committing a moral wrong. In justice to the profession in general, however, it must be said, that such expressions of opinion were quite exceptional."

Readers of the June number of *L'Hygiène* will doubtless remember the beautiful reproduction, on page 13, of Carreño's realistic picture, "Une Enfant Obèse." A short but extremely interesting article has appeared in the July number of the same magazine, in which this famous painting is carefully criticized from the doctor's point of view. It must have been clear even to the most superficial observer that the unfortunate little creature who served as the Spaniard's model was no ordinary child; and as a matter of fact she was not, being, as we learn from the pages of *L'Hygiène*, a dwarf, and in all probability stunted in her mental as well as in her physical growth. A careful examination of her face and figure has led to this diagnosis; features, hair, complexion, and, above all, her vast and unnatural bulk all point to disease, and disease of a kind that affects mind and body alike, and arrests all development in either. The "Enfant Obèse" is, in fact, says the writer, a typical example of myxoedema, a disease unknown to the physicians of her day. It is saddening to reflect, as we admire the wonderful colouring of her rich gown, and marvel at the pitiless dexterity with which Carreño has unwittingly reproduced every one of those signs which betray his sitter's affliction, that if this unhappy child, who probably occupied a position at the Court of Philip IV which she owed entirely to her deformity, had lived some two hundred and fifty years later, there would have been every chance of a radical cure by the administration of thyroid. Another interesting feature of the same number of *L'Hygiène* is a long article on appendicitis by Professor Dieulafoy, President of the Académie de Médecine, who denounces in the strongest terms the folly and danger of neglecting to call in a doctor at the commencement of an attack. His closing words are well worth quoting:

> Remember the following axiom: "It is very consoling, and absolutely true. *When the diagnosis is correct, and the operation is performed in time, and in accordance with the rules of surgery, no one need die of appendicitis.*"

Other things of interest are short articles on cerebro-spinal meningitis, by L. Vaillard, Medical Inspector-General in the French Army; typhoid carriers, by Dr. H. Vincent, Professor at the Ecole du Val-de-Grâce; a charming account of the visit paid by the Queen of Bulgaria to the School for Nurses of the Assistance Publique at the Salpêtrière, by André Mesureur; and last, but not least, the second part of M. Georges Vicaire's delightful sketch of that prince of gourmands, Grimod de la Reynière. The usual good taste has been displayed in the selection of the numerous illustrations scattered throughout the pages of the magazine.

THE following medical practitioners have been added to the Commission of the Peace for Ayrshire: Drs. William Adam Paterson, James Thompson, and James Wilson, all of Irvine.

THE number of medical students in the several universities of Switzerland during the past summer semester was as follows: Basel, 181; Bern, 393; Geneva, 570; Lausanne, 317; Zürich, 439.

British Medical Journal.

SATURDAY, SEPTEMBER 3RD, 1910.

THE MEDICAL PROFESSION AND THE FALLING BIRTH-RATE.

THE question of the falling birth-rate led to a very excellent debate at the recent annual meeting, and the full account of it which appeared in the issue of this JOURNAL for August 20th should be read even by medical men who commonly decline to be interested in this subject.

That some lack of interest should be not rare may be regarded as natural. It is a question in the discussion of which the real points are constantly allowed to be obscured by an infinity of side-issues, while theories are commonly made to play the part of facts, and in addition are dressed up in what the Americans or their English ancestors first summed up as "high falute."

In such case scientifically trained and normal-minded men are somewhat apt to turn away with a feeling akin to disgust; they are still more likely to do so if they recognize that the subject is one in which they have in the main no very direct concern, and if they are not aware of any fashion in which they can help to remedy matters.

On this occasion the treatment of the subject was, as might have been expected, of an attractively different order. It is true that a certain number of those who contributed to the discussion exhibited a tendency to wander rather far afield, and that one of them invited immediate action by medical men on grounds which at present certainly are unproved assumptions; but for the most part the speakers kept their views thoroughly in focus and maintained a true perspective in all their remarks. The result was a very illuminating debate, the success of which was mainly due to Dr. J. W. Ballantyne of Edinburgh. In past times he has made some notable contributions to the literature of this subject, and at South Kensington he initiated the discussion in a paper which, in point of lucidity and succinctness combined with comprehensiveness, has rarely been equalled by the author of any dissertation introductory to the formal discussions commonly held at these meetings.

Of such unproved assumptions—possibly correct, possibly wrong—as were made by any speaker, it is proposed to mention only one. This is that an ordinarily active sexual life in which pregnancy is intentionally prevented is directly inimical to the physical well-being of women. It is a statement constantly made, and partly on the strength of it medical men are told that it is their duty to preach the same doctrines on the subject as those of the Roman Catholic Church, which, however, are based on a totally different order of ideas. As already indicated, the assumption may be perfectly true, but the proof has yet to be furnished. The question merits consideration if only because the point is so constantly brought up; but many difficulties surround its thorough examination. If the idea can be shown to be well founded, medical men will then have truly medical—and, indeed, imperative—grounds for joining hands with those who express themselves as seriously disturbed by the fall in the birth-rate, and for co-operating with them so far as this particular factor is concerned.

Meantime, emphasis should be laid on the circumstance that the factors at work are numerous, and that the action of most of them can probably be negatived rapidly, if at all, neither by individuals nor the State, and that in any case most of them are of such kind as little to concern medical men as a profession. It is hardly possible to sum up these factors in a single sentence, but they are covered in a measure by the statement that while most people would admit that a childless family was one of the bitterest of ironies, and while love of children is no less characteristic of normal adults now than formerly, many men and women feel that they can best develop their capabilities by remaining unmarried, and many married couples esteem it a duty alike to themselves and to unborn possible progeny to limit their families to a number which they feel able to educate and place out in life in thoroughly satisfactory fashion.

It would, indeed, be somewhat paradoxical if in an age when the need for endowment, life, sickness, and all other insurances is being constantly put before the public, doctrines such as "Take no thought for the morrow what ye shall eat or what ye shall drink," and "Happy is the man who hath his quiver full," were felt to have their original force.

It is quite possible that these new scruples and such part of the fall in the birth-rate as results from their existence is an inevitable incident in the evolution of civilized humanity, and is the answer which Nature makes when it finds modern man departing so essentially in respect of environment and mode of life from those for which she first designed his ancestors.

It does not follow, however, that medical men have nothing to do with the subject. If a distinction is drawn, as it should be, between conception-rates and birth-rates, this becomes more obvious. With the former it is no concern of medical men to interfere, but the latter they can influence materially in respect of height, and beneficially in point of effectiveness. As for this effectiveness, the infant mortality-rate, after standing practically still ever since vital statistics commenced to be kept accurately, has fallen in the last year or two; but it is not yet certain that the fall is permanent, and continued efforts on the part of medical men will be required to reduce this rate still further. Should they succeed, the fall may be so great as to go a considerable way towards balancing the deficit in the birth-rate in this and most other civilized countries.

The effectiveness of the birth-rate can also be influenced by continuing the study of heredity, which has already been in progress so long, and by pressing on the notice of the public such facts as have been definitely ascertained. They may be few, but they offer the strongest ground for holding that a check should be placed on the fertility of certain classes of individuals whose offspring, if not defective from the beginning, almost inevitably grow up into citizens of very undesirable type. In both these directions there is plenty of work for the medical profession to do.

They can also help to increase the actual height of the birth-rate by doing what lies in their own power to bring into play the reserve of young lives. This

term Dr. Ballantyne aptly applied to the children who are conceived but at present never come into practical existence so far as national interests are concerned. To some part of this reserve allusion has already been made in speaking of infant mortality. The rest is made up of the children who die *in utero* or at birth What is the extent of this reserve it is impossible to state, as records of miscarriages, not to speak of abortions, are few, and there is but little assured knowledge on the subject of the proportion of stillbirths to living children.

In a measure, therefore, the whole question would seem to resolve itself, so far as medical men are concerned, into more careful study and practice of pediatrics, if it be permissible to extend that term, both to ante-natal and post-natal life. In particular it seems certain that the birth-rate would increase and objections to pregnancy diminish if the medical profession devoted a more considerable measure of its attention to endeavours to lessen the irksomeness of this condition as also to securing for future mothers first a normal gestation, a painless confinement, and ready convalescence.

Nor is it easy to dissent from Dr. Ballantyne's statement that medical men are at present somewhat too ready to leave their pregnant patients to shift for themselves, and to restrict their supervision to an occasional analysis of urine or a passing reference to diet and the state of the bowels. It is not the public which alone would benefit by increased attention, for if medical men proved to their patients that the condition of pregnancy when passed from the beginning under constant medical supervision was a healthier and happier one than when reliance is placed on old wife's nostrums or matters are allowed to go their own way, they would soon find that their services were being called into requisition more frequently, and that they were being sent for at a much earlier date than the second stage of labour, and for other purposes than those of tying the cord or putting on forceps.

"UNDEVELOPED LAND" OF MEDICINE.

In the sphere of medicine there is a vast area of "undeveloped land" which Mr. Lloyd George has somehow failed to include in his Budget. It comprises many methods of treatment which are scarcely taught at all in the schools, which find no place in textbooks, and which consequently the "superior person" passes with gown uplifted to avoid a touch that is deemed pollution. The superior person is, as has more than once been pointed out, one of the greatest obstacles to progress. Not to go back so far as Harvey, who was denounced by the leaders of the profession in his day as a *circulator* or quack, we need only recall how the open air treatment of consumption was ridiculed when the idea was put forward by Bodington, and that years later a member of the Medical and Chirurgical Society asked that that enlightened body should be "protected" against such papers as one in which the late Sir William MacCormac's father had enunciated the same doctrine. When Villemin submitted to the Académie de Médecine experimental proof that phthisis is an infective disease, his doctrine found no favour. Famous physicians refused to listen to Pasteur because he was not a medical man; Lister was scoffed at; the laryngoscope was sneered at as a "physiological toy"; the early ovariotomists in this country were threatened by colleagues with the coroner's court; electricity was looked upon with suspicion; massage within our own memory was regarded as an unclean thing. Even now the vast field of physiotherapy is largely left to laymen for exploitation.

The damage done to the profession by this neglect of things which, if properly applied, hold within them large possibilities of usefulness for the relief of suffering, is very great. Rational medicine should take as its motto Molière's saying, *Je prends mon bien où je le trouve;* whatever can be used as a weapon in the warfare against disease belongs to it of right. Medicine, if it is to be truly rational, must refuse to be bound within the trammels of any "system"; in a scientific sense it must be absolutely unsectarian. A label of any kind is in itself a mark of that worst form of heresy which consists not in opposing authority, but in attempting to embrace all truth within a formula. Hence medicine may legitimately borrow what is good from any system, however absurd may be the general body of that doctrine. The homoeopaths rendered a great service to the healing art, not by the theory on which their practice is alleged to be founded, but by showing that the drastic measures formerly believed to be essential were needless even when not in themselves dangerous. From homoeopathy, in fact, was learnt the far-reaching truth that many diseases tend naturally to get well without physic. Wharton Hood went among the bonesetters, and brought back much that is not perhaps even yet fully appreciated by many surgeons. Now Dr. Bryce has witnessed the mysteries of osteopathy and tells what he saw in a paper published in this week's issue. His account of this strange doctrine will, we think, be read by many with interest.

Osteopathy, which may be described as the "Higher Bonesetting," has the simplicity of the system taught to Gil Blas by Dr. Sangrado. "Its nosology," as Dr. Bryce says, "is a lesion; its symptomatology a subluxation; its therapeutics manipulation." But, as he shows, one may get hints for treatment of certain obscure cases without believing that in the reduction of some subluxation, real or imaginary, lies the secret of curing all diseases. The results recorded by him are of themselves sufficient to justify us in calling attention to the method.

With osteopathy as a doctrine we have already dealt on more than one occasion. It may not be out of place, however, to quote some parts of the account given of it in a volume entitled *Medical Education in the United States and Canada*, a report recently made to the Carnegie Foundation for the Advancement of Science, by Abraham Flexner. There are, it appears, eight osteopathic "schools" in the States—at Chicago, Les Moines, Kirksville (Missouri), Kansas City (Missouri), Philadelphia, Cambridge (Massachusetts), and Los Angeles, which rejoices in the possession of two. Of these schools it is said that they "fairly reek with commercialism. Their catalogues are a mass of hysterical exaggerations, alike of the earning and of the curative power of osteopathy. It is impossible to say upon which score the 'science' most confidently appeals to the crude boys or disappointed men and women whom it successfully exploits." It is stated "with all possible emphasis, that no one of the eight osteopathic schools is in a position to give such training as osteopathy itself demands. The entire course is only three years. In so simple and fundamental a matter as anatomy—assuredly the corner-stone of a 'science' that relies wholly on local manipulation—they are fatally

defective." It is added that nowhere is there the faintest effort to connect such "laboratory teaching" as is given with "clinical osteopathy;" and it is suggested that this may be because no school has anything like the clinical opportunities required. The osteopath for the most part begins to see patients only when, after receiving his D.O. degree, he is fortunate enough to get some private practice. The position is summed up in the following significant paragraph:

"The eight osteopathic schools now enroll over 1,300 students, who pay some 200,000 dollars annually in fees. The instruction furnished for this sum is inexpensive and worthless. Not a single full-time teacher is found in any of them. The fees find their way directly into the pockets of the school owners, or into school buildings and infirmaries that are equally their property. No effort is anywhere made to utilize prosperity as a means of defining an entrance standard or developing the "science." Granting all that its champions claim, osteopathy is still in its incipiency. If sincere, its votaries would be engaged in critically building it up. They are doing nothing of the kind. Indeed, in none of the sectarian schools does one observe progressive effort even along the lines of its own creed. And very naturally: dogma is sufficient unto itself. It may not search its own assumptions; it does well to adopt from the outside, after forced restatement in its own terms."

Nevertheless, if there is anything in osteopathy that may help to ease a sufferer of some pain the cause of which is not apparent, the practitioner should not hesitate to use such aid. Patients who are cured by the manipulations of the osteopath, like those who get relief from any of the manifold varieties of faith healing, are often the failures of rational medicine. These things, therefore, should not be dismissed with a foolish contempt; they should be studied, and the secret of whatever good there may be in them should be discovered. To our mind the special value of Dr. Bryce's paper is that it enforces the view expressed in this article, that the "undeveloped land" which rightly belongs to medicine should not be left to be cultivated by those not of the household of science.

CHOLERA RISKS.

THE cholera scare, to whose existence we made allusion last week, is pursuing its normal course. Apart from Russia, in different localities of which cholera has undoubtedly been present for several years past, cases have been reported from Berlin, Budapest, Vienna, Constantinople, and in the Bari province of Italy on the Adriatic coast. Several of these have already been proved to be false alarms, but the cases in Italy would appear to be genuine cholera. Italy, though no longer an ideal spot from the point of view of a cholera germ, possesses features more favourable to the progress of an outbreak than do most northerly countries; but, despite this fact, there has been no rapid spread, and the authorities would seem to be in a position to deal with matters effectively. The area within which there is most ground for alarm at the prevalence of cholera in Russia includes the countries at the eastern end of the Mediterranean basin. Intercourse between these and South Russia is frequent, and in these days rapid. Partly on this account, partly owing to the mental constitution and physical surroundings of their inhabitants, something resembling the old quarantine regulations are still applied by these countries, and cholera has there not yet lost its reputation as an international bogey. In practice, however, Egypt, Syria, Asia Minor, Greece, and Turkey have all in turn proved within recent years perfectly capable of dealing promptly and successfully with outbreaks when they have actually occurred. So far as Great Britain is concerned, no cases have been rumoured, and still less ascertained, to exist in any town in very direct communication with its shores; but even if the facts were otherwise, there would still be no cause for alarm. Thanks to the late Professor Koch and other investigators, whose methods of work are denounced with much virulence by certain noisy sections of the community, the etiology of cholera and the method of its propagation are now thoroughly understood, with the result that even if cholera cases were imported into England their presence could be regarded with practical indifference by 999 out of every 1,000 of the population. It is quite likely, indeed, that their existence would remain practically unknown were it not for the interest the lay press now takes in medical matters and the magnificent success with which its information bureaus have been organized. In any case, however, such importation would be improbable, for cases arriving by merchant ships would almost certainly be detected and isolated at the port of arrival. On the other hand, it would seem possible that cases might reach England by way of Dover, Folkestone, Harwich, Newhaven, and such other sea ports as are constantly receiving railroad passengers from the other side of the channel, for it would appear—as was not known at the time of the last revision of the international regulations relating to cholera—that there may be "cholera-carriers" just as there are "typhoid-carriers." Knowledge on this subject is not, however, as yet positively assured, and even if a cholera-carrier did arrive in this country and take up his residence in some town or rural locality, the extent of the mischief which he would do should, for the reasons stated, be of a very limited character. Cholera is an entirely waterborne disease, and the water supplies in this country are for the most part excellently supervised.

MIRACLES OF HEALING.

IN a letter published in this issue of the JOURNAL a distinguished physician who hides his identity under the pseudonym "Unconvinced" asks why modern "miracles" are confined to the sphere of healing. To this it may be replied in the first place that the thoroughgoing believer in miracles will not admit that they are limited to the cure of disease; for instance, the alleged liquefaction of the blood of St. Jannarius, though it is held to be in some way connected with the welfare of the city of Naples, is not a miracle of healing. It is true, however, that healing plays a very large part in modern thaumaturgy. Miracles do not happen in the domain of astronomy or physics. Why? Because these are sciences in which a considerable measure of exact knowledge has already been obtained. It must be admitted that medicine is not yet entitled to rank as a science. It does not fulfil the test of a science—that is to say, the power of prediction. The most experienced among us cannot foretell with absolute certainty the issue even of a trivial ailment, or the action of an ordinary drug in a given case, as an astronomer can predict an eclipse. There are no miracles of engineering, because that art is based on accurate knowledge of all the conditions of the problem to be dealt with. There may, of course, be miscalculation and consequent disaster but the difference between engi-

neering and medicine is that, if in the domain of the former anything goes wrong, it is due to bad workmanship; whereas, in the sphere of medicine, a physician of the highest skill, using every resource and precaution that science places in his hands, may fail to cure or even to recognize the disease. If an engine bursts or a bridge breaks down, that is the fault of the engineer; if a physician fails to cure, that is in a large proportion of cases due to the imperfection of his art arising from want of knowledge. The more medical science grows, the smaller will the number of "miracles" become. The proper attitude of the philosophical physician is not to deny facts in the face of evidence which would be accepted in a court of law, but to seek for a rational explanation of them. We may instance the famous case of the "African Confessors," whose tongues were torn out at Tipasa by order of the Vandal King Hunneric in 484, and who yet had afterwards the power of speech. This was long regarded as a miracle, and the evidence of the fact even puzzled Gibbon. Modern surgeons would have no difficulty in believing the fact without seeing in it anything miraculous.[1] It may not be out of place here to quote a suggestive passage from Anatole France's *Jardin d'Epicure:* "Every one knows the miracle of Bolsena immortalized in one of the *Stanze* of Raphael. An unbelieving priest was celebrating Mass; the Host, when he broke it at the Communion, appeared covered with blood. Only ten years ago the Academies would have been very much puzzled to explain so strange a thing. One is not even tempted to deny it, since the discovery of a microscopic fungus, the colonies of which established in flour or in paste have the appearance of coagulated blood. The scientist who made this discovery, believing with truth that these were the red spots of the Bolsena Host, called the fungus *Micrococcus prodigiosus*. There will always be a fungus, a star, or a disease unknown to human science, and it is on that account that it must always, in the name of eternal ignorance, deny every miracle and say of the greatest wonders as of the Bolsena Host, as of the Star in the East, as of the cure of the paralytic: Either this is or is not the case, and if it is, it is in Nature and consequently natural." We do not wish to be understood as denying the possibility of miracles; that is a theological question which it is not our business to discuss. We are only concerned with facts which seem to be outside human experience, and in regard to these we hold that the scientific line of thought is to seek for an explanation without involving a supernatural agency. On the other hand, let us not speak of violations of the laws of Nature till we have a full knowledge of those laws.

[1] See *The Tongue not Essential to Speech*. By the Hon. Edward Twisleton. London. 1873.

THE "ENCYCLOPAEDIA BRITANNICA."

The University of Cambridge has acquired the copyright of the *Encyclopaedia Britannica*, and is about to publish, at the University Press, an entirely new edition, which, it is said, constitutes a completely new and original survey of human knowledge down to the summer of 1910. It is more than 140 years since the famous *Encyclopaedia Britannica* was first planned by "a Society of Gentlemen in Scotland." The first edition began to appear in 1768, and was completed, in three volumes, in 1771. Since then ten editions have been published, the last one having been issued in 1902 by the *Times*. Preparations for the eleventh edition were begun by the *Times* in May, 1903. The work was entrusted to a large and competent staff, under the editorial direction of Mr. Hugh Chisholm, one of the editors of the tenth edition, reinforced by eminent specialist advisers outside the office, as well as by some 1,500 distinguished contributors in all parts of the world. It came to be realized, however, that the proper origin and abiding-place for the foremost work of reference used by English-speaking people throughout the world was not a newspaper office, but a great learned institution. The eleventh edition of the *Encyclopaedia Britannica* will therefore be issued as a complete work, in twenty-eight volumes, by the University of Cambridge. The most important of the new features which will mark this issue of the *Encyclopaedia Britannica* by Cambridge University is the fact that the whole of the work has been produced and will be published at the same time. Never before has it been possible, owing to the conditions of publication, to exercise a real editorial control over the whole of the *Encyclopaedia Britannica* at one time and as a whole. The whole of the manuscript has lain under the editorial survey at one time, and the editors were thus able to avoid repetitions, to investigate and reconcile inconsistencies, often eliminating error. All the twenty-eight volumes have practically left the hands of the editors, and are in course of manufacture, so that the work will be issued as a complete whole about the end of this year, or at least in the first months of 1911. One other striking innovation that will be greatly appreciated by those who have occasion to consult the *Encyclopaedia* is the diminution in thickness and weight of the volumes that has been accomplished by the use of India paper. It is estimated that a volume printed on that paper will be less than one-third as thick as an ordinary volume containing precisely the same number of pages, and the average weight of such a volume will be less than one-third that of a volume on the ordinary paper. This will make it much easier to find shelf room for the *Encyclopaedia Britannica*, as the complete set of twenty-eight volumes on India paper will only occupy 2 ft. of linear space, as against nearly 6 ft. for the impression on ordinary paper; and for the first time the *Encyclopaedia Britannica* will be found a comparatively portable work, as its total weight will not exceed 60 lb., while the ordinary paper impression weighs more than 200 lb.

CONGRESS OF THE SANITARY INSTITUTE.

The Congress of the Royal Sanitary Institute, which is to meet in Brighton from September 5th to the 10th, will deal with a number of very important problems in the field of public health. In the Preventive Medicine Section, of which Dr. Hope, of Liverpool, is President, the economic effect of hygiene on the wage-earning capacity of the people will be discussed; the debate will, it is hoped, throw some light on the practical results of modern sanitary effort. Infectious disease in connexion with railway travelling and several subjects relative to the healthy administration of schools will also be dealt with. In the Engineering and Architectural Sections, over which Mr. Henry Rofe, M.Inst.C.E., presides, the influence of subsoil waters on health will be introduced by Mr. Baldwin Latham, and several aspects of school planning, municipal baths and washhouses, and fever hospital construction will come under consideration. The Conference of Municipal Representatives, presided over by the Mayor of Brighton, will have under discussion the Notification of Births Act and the difficulties presented by the recent legislation with regard to midwives. The most effective and economical means by which municipal authorities can provide sanitoriums and treatment for the poorer members of the

community will be considered in the light of recent experience of the efforts that have been made by several authorities to meet this need. The Conference of Port Sanitary Authorities, presided over by Mr. Williamson, Chairman of the Port of London, will consider the disinfection of ships in relation to the introduction of plague and cholera. For many years the careful measures taken at the ports of landing have prevented any serious outbreak in this country, but the continuance of this immunity is of such vast importance to the nation that a further consideration of these protective measures is just now of the greatest importance. The ventilation of ships and the improvement of accommodation for the crews will also come up for consideration. In the Conference of Medical Officers of Health, under the presidency of Dr. Sergeant, of the Lancashire County Council, the registration of schools not controlled by the Board of Education will be considered, the object being to provide some method by which proper space, ventilation, and general health conditions can be secured in private schools which at the present time have practically no supervision. Administrative measures in controlling milk supplies during outbreaks of sickness in cows will also be discussed, and the transmission of scarlet fever and diphtheria from animals to man will be the subject of debate by the Veterinary Inspectors' Conference, presided over by Mr. W. Hunting. The Women's Section, under the presidency of the Countess of Chichester, will devote attention chiefly to papers on the feeding of infants and the teaching of practical hygiene in the home; and in the Childhood Section, under Sir William Collins, many aspects of child life will be considered, including the feeble-minded child, and the measures that can be adopted for improving the condition of this unfortunate class, both in their own interests and the interests of others. The physical training of girls, and the recent experience of treatment of ringworm by *x* rays, are also included in the programme. A popular lecture will be given by Dr. Alex Hill, late Master of Downing College, on "The Bricks with which the Body is Built," and the "National Importance of Child Mortality" will form the subject of the lecture to the Congress by Dr Arthur Newsholme, Principal Medical Officer of the Local Government Board.

TRAFFIC IN HUMAN HAIR.

IN the BRITISH MEDICAL JOURNAL of August 27th reference was made to the brisk business done in the sale of human hair which is used to supply the natural lack of what has been called woman's finest ornament. In *Chambers's Journal* for September 1st we find some details as to the hair market which may supplement the information we were able to give as to the source of the commodity. The greater bulk, says our contemporary, comes from the south-eastern corner of Bohemia. In this region the human hair market is a familiar sight, and the preparation of the material is quite a large industry. The native supply is supplemented by cargoes from China, but these combings are restricted to a certain class of article. The importation from China is very large, the hair arriving in bales packed in straw, averaging about one hundred and thirty pounds in weight. The Chinese hair, as is well known, is intensely black, and as such is of no value. Upon its arrival at the factory, therefore the first process is to change its characteristic colour. This is accomplished by bleaching it in a solution of hydrogen peroxide. Afterwards the hair is sorted according to its length and grade, dyed, and finally finished in any shade desired by the customer. We are unable to say whether the trade is a profitable one, but we note that an individual —not apparently a member of the medical profession— describing himself as an "obesity specialist" recently attributed his bankruptcy partly to his having devoted his attention to the importation and sale of human hair, and to "intellectual pursuits." Bald men often ascribe the loss of their hair to the stress of mental work, the nutritive material intended for it being diverted to the brain—a theory which is received by the uncharitable as having much the same foundation as Falstaff's attribution of his huskiness of voice to singing of anthems. It is conceivable that bankruptcy may lead to baldness, but the case referred to would seem to show that the baldness—of other people—may lead to bankruptcy.

THE MEDICAL LIBRARY ASSOCIATION.

FOR readers of this JOURNAL the new body entitled the Medical Library Association has a special interest apart from the excellence of its objects. The idea of forming an association was conceived at the annual meeting at Sheffield in 1908, and it came into actual existence at the meeting at Belfast last year. On that occasion Dr. Walker Hall, of Bristol, and Mr. C. E. A. Clayton, of Manchester, the two gentlemen to whom the Library Association practically owes its existence, and who are still acting as its honorary secretaries, arranged a most excellent exhibit of ancient manuscripts—of which an account was given at the time—and during the meeting the constitution of the association was finally determined. Formally stated, its objects are: (*a*) To bring together those engaged in, or interested in, medical libraries and medical literature; (*b*) to maintain an exchange for the distribution of duplicate books and periodicals; (*c*) to increase existing facilities for reference work; (*d*) to encourage the study of the history of medicine; and (*e*) to issue publications relating to the principles and details of medical library work. This year three meetings were held during the proceedings at South Kensington, one being of a business character, and the rest open meetings, at which papers were read and discussed. At the first of the latter Professor Osler, who has been taking an active part in matters from the beginning, described the different types of medical libraries to be found in the British Isles, the value of co-operation between them, and the way in which it might be assisted by the Association. Mr. Victor G. Plarr then gave an account of the catalogue of the library possessions of the Royal College of which he is librarian, and defined librarianship as the quintessence of obscure and faithful routine, and a good librarian as a man neither conscious of himself nor prone to analyse an almost instinctive set of practices. The last printed Supplement to the Author Catalogue of the Library of the Royal College of Surgeons was issued in 1860, and then for many years, as the library rapidly increased, a rough card catalogue was kept by the late Dr. Chatto. Eventually Mr. James Blake Bailey, the speaker's immediate predecessor, determined to catalogue the whole library (which now numbers more than 60,000 volumes), and entered light-heartedly on what had since proved a stupendous task. It had lasted some twenty years, but was now practically completed, at any rate, from the point of view of the modern medical profession and modern research. During the past ten years more than 47,000 catalogue-cards, some of which were necessarily voluminous, had been written out. The ideal cataloguer, besides being much else, must be a logician and a linguist, especially a Latinist and German scholar. No scrap of knowledge came amiss when dealing with scientific bibliography. Though the cataloguer's work admitted of no sensational

triumphs, he had the satisfaction of arranging some of the bricks of the great fabric of civilization and thus of increasing and strengthening it. On the second day Mr. C. R. Hewitt, librarian to the Royal Society of Medicine, discussed on practical lines the organization of a medical library, and Mr. H. M. Barlow, assistant librarian to the Royal College of Physicians, showed that on the analogy of the Association of Medical Libraries in the United States the new organization was likely to be thoroughly successful and to confer material benefits on all medical workers in this country. In the final paper, Mr. A. L. Clarke, assistant editor and cataloguer Royal Society of Medicine, dealt with abstracts. These, he said, if they were to give, as they should, just the information required and no more, should contain the author's opinion in a few words, an outline of any statistics his paper contained, and a concise description of the methods detailed, whether a laboratory process or a particular medical treatment or a surgical operation. The subscription to the association is half a guinea a year; the addresses of its honorary secretaries are: Dr. Walker Hall, 3, Royal Park, Clifton, Bristol; Mr. C. E. A. Clayton, the Library, Victoria University, Manchester.

WEST AFRICA AND YELLOW FEVER.

SIR RUBERT BOYCE returned on August 27th from the Gold Coast, where he has been investigating an outbreak of yellow fever. According to the report of an interview with him, which appears in the *Liverpool Journal of Commerce*, the declaration of the existence of yellow fever in British West African colonies this year means, in his opinion, the turning point in their future health prospects. The significance of the declaration lies in the fact that the existence of an unsuspected disease had been found out. This disease was the one which has all along mainly given West Africa such an evil reputation, and which has actually gained for Freetown the unenviable name of the "white man's grave." But now that it is definitely known to be yellow fever, it is a comparatively simple matter to get rid of it, as has been shown at Panama, Rio, and the West Indies. Yellow fever is transmitted, as is well known, by the bite of a species of mosquito, which is unfortunately at the present time very prevalent in West African Coast towns. However, already the Government has got to work in earnest, both in Sierra Leone and in the Gold Coast territory, ut it is especially incumbent upon the West African merchants and mining companies in these colonies to co-operate with the Government by seeing that their clerks and employees work under the most healthful and sanitary conditions. The results of Sir Rubert Boyce's investigations will appear in a eport which he proposes to make to the Government.

THE SEISDON POOR LAW UNION.

THE inhabitants of the Union of Seisdon, in South Staffordshire, can scarcely be congratulated on the business aptitude displayed by their representatives on the board of guardians. They have just succeeded in losing the services of a well-tried and experienced medical officer by refusing an application made by him, and have promptly had to admit that the application was perfectly justified and that they will now have to fill the vacancy at an increased cost. The population of the district in charge of the medical officer in question, Dr. F. A. Cooke, has grown materially since he first took up the appointment some nine years ago, and in consequence Dr. Cooke made representations on the subject to his authority. He showed that the increase of his work was of such a material character that even when new Poor Law patients were alone taken into consideration he was now required to do more than twice as much Poor Law work as one of his colleagues, and a third more than the other, but for the same very modest salary. At the same time the amount he received from vaccination fees had decreased. On these grounds he submitted that his salary should be augmented. The application was promptly refused, and was again refused on being sent in a second time later on. Hence Dr. Cooke resigned his appointment at the end of June this year. When the guardians tried to replace him, there was only one candidate, who withdrew his application on becoming acquainted with the facts. The next step taken by the guardians was to give Dr. Cooke notice of dismissal from the post of public vaccinator, and to raise the salary attached to the office of Poor Law medical officer by £5, namely, from £40 to £45. They then declared both appointments vacant and are now endeavouring to secure applicants. Whether they will be successful is quite another question; for there is a strong feeling in the district that Dr. Cooke has been unfairly treated, and this being the case it is unlikely that any man already in practice within the union will prove willing to take the appointments, while it would, of course, be foolish for any outside practitioner to endeavour to gain a footing. At present a warning notice is appearing in our advertisement pages, and presumably will continue to do so until the Divisions concerned in the matter have decided whether the new terms now offered by the guardians represent adequate payment for the services required and whether application can rightly be made by any one who does not desire to be disloyal to the rest of the profession.

INFANTILE PARALYSIS.

AT the Congress of American Physicians and Surgeons held at Washington in May last, the subject of epidemic poliomyelitis was discussed at a joint meeting of the American Orthopaedic and American Pediatric Societies. The following resolution was adopted: "It having been shown by recent epidemics and investigations connected with the same that epidemic infantile spinal paralysis is an infectious communicable disease that has a mortality of from 5 to 20 per cent., and that 75 per cent. or more of the patients surviving are permanently crippled, State boards of health and other health authorities are urged to adopt the same or similar measures as are already adopted and enforced in Massachusetts for ascertaining the modes of origin and manner of distribution of the disease with a view of controlling and limiting the spread of so serious an affection." A committee, with Dr. Robert W. Lovett, of Boston, Massachusetts, as President, and Dr. Irving M. Snow, of Buffalo, New York, as Secretary, was appointed to urge the various State and municipal health authorities to take up the work of investigation of the various foci of epidemic poliomyelitis, to study its epidemiology, and to instruct the public that the disease is at least mildly communicable.

THE INTENSIFYING SCREEN IN RADIOGRAPHY.

ONE of the most noteworthy features of recent radiological development on its commercial side has been the introduction of a considerable number of new intensifying or re-enforcing screens for shortening the duration of *x*-ray exposures. Almost every dealer in Roentgen-apparatus now lists a screen of this kind, under one or other name, and claims that it will reduce

the exposure by nine-tenths, or even more, and that the resulting negatives are free from grain. The screens consist, speaking generally, of a flexible sheet of pasteboard coated with a substance which, like platino-cyanide of barium, becomes luminescent under the influence of the *x* rays, and the luminous rays emitted add their quota to the Roentgen-ray action and assist in the modification of the salts of silver on the photographic plate. In the Radiological Section of the recent meeting of the British Medical Association the opinion was expressed more than once that the screens had considerable value in the radiography of bismuth-filled stomachs and intestinal conditions, but that they had their limitations, and must on no account be used in such delicate explorations as are entailed in the *x*-ray diagnosis of phthisis. Praise similarly qualified has been bestowed upon these introductions in the course of two recent discussions upon the precise value of such screens, which have taken place at the Société de Radiologie Médicale de Paris.[1] A useful communication was made by Béclère, who thought that the various new screens on the market—he spoke particularly of one of German origin—constituted a great improvement upon those that were manufactured ten or fourteen years ago. Nevertheless, in the case of images of very fine structure—osseous or pulmonary—the fact remained that, given the same conditions as to the immobility of the radiographed region, a radiograph taken without the intensifying screen retained its superiority over one taken with the screen as an adjunct. Without professing to know the composition of the accelerating substance in the case of the commercial screens, he pointed out that any of the substances which became luminescent under the action of the *x* rays could be used in their manufacture, although the substances possessing the most vivid luminosity were not those which exercised the re-enforcing action to the fullest extent. The reason for this was that the actinic radiations capable of impressing the plate were not necessarily the visible ones, and might be those appertaining to the region of the ultra-violet. In using the screen, Béclère preferred to interpose it between the plate and the region to be radiographed, instead of, as commonly advised, interposing the plate between the region and the screen. Some difference of opinion was expressed by the French experts as to whether the intervention of the screen, in a radiograph of the lumbar region, would "muffle" the outline of the kidney, but Béclère stated definitely that the kidney outline could be shown, and he also brought forward some radiographs of the intestine, including one of a tumour of the pylorus, all satisfactorily taken in a fraction of a second, after a bismuth meal. He believes that these intensifying screens, although not advisable in every case, are of great assistance when immobility is out of the question, as in the case of the organs of digestion, or when immobility can only be maintained for a few seconds, as in the case of the respiratory apparatus.

THE PROVISION OF DIPHTHERIA ANTITOXIN.

SEVERAL newspapers have lately published a letter from Dr. Hadwen touching the circular of the Local Government Board to which attention was drawn in the JOURNAL of August 20th. He is of opinion that the free supply of diphtheria antitoxin is "not merely unconstitutional, but reprehensible." He says that the antitoxin is useless; that the death-rate from diphtheria to the living population has greatly increased since the introduction of antitoxin, etc. The truth is that during the fifteen years before the introduction of the antitoxin the death-rate rose steadily from 120 to 318 per million; during the fifteen years after the introduction of the antitoxin it fell steadily from 291 to 157. And, of course, we must remember that thousands of cases, thirty years ago, and less than thirty years ago, were called "croup," which would now be called "diphtheria." Dr. Hadwen also says that "the case mortality of certain hospitals has only been reduced by the inclusion of large numbers of cases of bacteriological diphtheria possessing no clinical signs of the disease." Ignorant people, reading this letter, might think that the antitoxin was given, as a matter of routine, in cases showing no clinical signs of the disease. And how does he account for the reduced mortality in cases of laryngeal diphtheria and in tracheotomy cases? Finally, he says that the fatality in the cases where antitoxin has not been used has been reduced to a much greater extent. Reduced from what? These cases where the antitoxin is not used are: (1) Cases that do not need it; (2) cases admitted moribund, too late for it. We have noticed Dr. Hadwen's letter for this reason alone, that we have received letters from several correspondents who are surprised at the publication of this letter in the newspapers. We prefer to Dr. Hadwen's opinions the general experience of medical men. Diphtheria antitoxin has been in daily use, these many years, all over the world. It has saved, by this time, not less, probably, than a quarter of a million lives. If it were possible for Dr. Hadwen now, as it was in 1894, to observe, in two hospitals, in one city, during the same period of time, diphtheria treated with antitoxin and diphtheria treated without it, we think it possible that he might change his mind.

[1] *Bulletins et mémoires*, Nos. 15 and 16, 1910.

AN American association for the study and prevention of infant mortality has lately been founded, and will hold its first meeting next November in Baltimore.

AMONG the recipients of the honorary degree of D.Sc. from the University of Sheffield on the occasion of the meeting of the British Association for the Advancement of Science, being held this week in that city, are Professor C. S. Sherrington, M.D., F.R.S. and Mr. Francis Darwin, M.A., M.B., F.R.S.

THE late Professor William James, of Harvard, well known throughout the world as the founder of the system of philosophy called "pragmatism," supplemented an unusually wide scientific training by studying medicine at Harvard, where he took the M.D. degree in 1870. He was for some years assistant professor of anatomy and physiology. He then gave himself up wholly to philosophy, of which he was appointed professor in 1889.

THE second International Conference for the Study of Cancer will be held in Paris, under the patronage of the President of the French Republic, and the Honorary Presidency of the Minister of Public Instruction, from October 1st to the 5th. The President will be Professor Czerny. The official languages of the Congress will be French, English, and German. Subscriptions (£1) should be sent to the Treasurer, Dr. H. de Rothschild, 6, rue Saint-Philippe de Roule, Paris, VIII^{e}. All members of the Congress will be entitled to receive a complete set of the publications of the Conference.

England and Wales.

[FROM OUR SPECIAL CORRESPONDENTS.]

MANCHESTER.

MANCHESTER ROYAL INFIRMARY.

THE Manchester Royal Infirmary has recently been advertising for applications for the post of Honorary Assistant Surgeon, and it was specified in the advertisements that candidates must be Fellows of the Royal College of Surgeons of England. This condition, of course, altogether debars candidates who have only the Scottish or Irish diplomas, and considerable irritation has been expressed at what is regarded in some quarters as a slight on the Scottish and Irish diplomates. The Council of the Association of Fellows of the Royal College of Surgeons of Ireland has forwarded a resolution of protest against the invidious distinction. It is pointed out that some of the most eminent surgeons in England have only the F.R C.S.Ireland, and it is claimed that the Irish Fellowship is in every way equal to the English. The resolution to be laid before the Board of Management by Mr. Carnt, the Secretary of the Infirmary, says that the condition attached to the advertisement is according to the rules of the infirmary, and he understands that the only object is to secure the best man for the patients. It would be futile and invidious to attempt any comparison between the merits of the English compared with the Scottish and Irish Fellowships, but even the strongest advocate of the superiority of the English College must admit the very modest statement that the Scottish and Irish Fellows are not always invariably and without exception less competent than the English Fellows.

BIRMINGHAM.

ADDITIONAL PRECAUTIONS AGAINST CONSUMPTION.

SOME additional precautions against the spread of consumption were suggested by the medical officer of health for Birmingham in the annual report for 1909. It seems that the present powers are quite insufficient to check the dispersal of infectious sputum. All cases of phthisis coming under the care of the boards of guardians are compulsorily notifiable, and in addition medical men in Birmingham are asked to notify private patients. By these means 60 to 70 per cent. of all cases of advanced tuberculosis of the lungs are known to the health authorities. When a case is notified the patient is visited and advised as to how to dispose of his sputum, and is warned of the danger of indiscriminate spitting. Many of these patients conscientiously follow the directions which are given them. Probably every person suffering from consumption has been spitting out living tubercle bacilli for at least a year before he is notified and warned, while many patients are careless even after being warned, so that this portion of the preventive work cannot be very efficacious. The result is that at present there is a considerable amount of living tuberculous infection strewn broadcast on footpaths and other public places, and in the dwellings of patients. This has been demonstrated by a recent examination of spits picked up from the streets of Birmingham by one of the labourers in the employ of the Health Department, for 7 per cent. of the spits were found to contain living tubercle bacilli. Only yellow-coloured spits were collected, and one sterilized outfit was used for each sputum, so that no question might arise as to each being free from added infection. Many investigations have been made with regard to the dust on ledges and shelves in houses, and the general result has always been that in a majority of the houses where a careless consumptive lived such dust contained living tubercle bacilli, whereas where a careful consumptive lived no such bacilli were found to exist. The medical officer of health is of opinion that it is not advisable at present to introduce any measure which will single out the consumptive and make it an offence for him alone to spit indiscriminately. In every street in a large town there is ample accommodation for those persons who really need to spit, and therefore spitting in the streets, except in the channels and street gullies, should be forbidden by by-laws. The spitting habit seems to be getting less and less, but, nevertheless, in 90 per cent. of cases it is quite unnecessary. Notices requesting persons not to spit are placed in great numbers on the lamp-posts, in omnibuses, public-houses, factories, workshops, and places of public resort. In the tramcars belonging to the Corporation of Birmingham the following peremptory notice, "No person shall spit in or upon any car," is placed as the result of a recent by-law made by the City Council. By these means it is hoped to reduce the unwholesome and dirty habit of promiscuous spitting.

THE MILK SUPPLY OF BIRMINGHAM.

The annual report of the medical officer of health for Birmingham gives an account upon the work done in regard to the inspection of cowsheds and the examination of milk for tubercle infection. The milk supply of Birmingham is derived partly from herds kept within the city area, but mainly from outside. In the former there are powers of inspection of cows and sheds, which are not accorded to the latter, where there is only power to endeavour under restrictive conditions to trace cows suspected of causing tubercle infection in milk, and, when these are found, to interdict them from the dairy herd. There was a monthly veterinary inspection of cows and cowsheds in the city and periodic examination of mixed and unmixed samples of milk. The cows were found mostly clean and healthy, and the cowsheds were kept, on the whole, in a clean and sanitary condition. There were 6,267 cows individually examined in 1909, and in no case was tuberculosis of the udder detected. Corroboration of the general freedom from tuberculosis of the udder in city cows is shown by the fact that in none of the milk samples were tubercle bacilli found. This satisfactory result is partly due to the regular practice followed by city cow-keepers of buying only comparatively young and healthy-looking cows, guaranteed to have sound udders, and selling them out fat within the year, and partly to the systematic inspection in force, which generally secured the voluntary casting at once from the herds of any cows showing evidence of advanced tuberculosis. With regard to the general milk supply, two methods were employed in order to eliminate tubercle infection. The one was to free the herd from tuberculosis, and the other was to trace the infecting cow in a herd and to remove it. The latter is not satisfactory, for it is only after infection has been found in the milk that any attempt is made to trace the infecting cow. A bacteriological examination was made of 106 samples of mixed milk taken from churns at the railway stations, and 7.54 per cent. were found to contain living tubercle bacilli, as compared with 13.72 per cent. in 1908. The farms supplying the tuberculous milk were visited, and the dairy herds inspected. In the cows slaughtered, where a *post-mortem* examination was made by competent observers, tuberculous lesions of the udder were found. A scheme was approved of by the City Council with the view to eradicating tuberculosis from a number of herds within ten miles of the city. This scheme provided for paying the veterinary expenses incurred by dairy farmers, provided they complied with certain approved conditions. Under this scheme 20 dairymen applied to have their herds tested, and in 16 instances the request was complied with. The reasons for refusal were, in one case, the farm was without the prescribed area, in another the sheds did not comply with the necessary requirements, and in two cases the milk was not sold in Birmingham. In consequence of the measures adopted, 8 herds were freed from tuberculosis, and 5 were being freed; but in the other 3 the procedure was suspended, as the farmers declined for the present to proceed further with the matter, owing to the high percentage of cows found infected. Altogether 803 cows were tested, of

which 567 were found free, and 236, or 29.38 per cent, affected. The veterinary cost of testing, in addition to the regular expense of the Corporation veterinary staff, was £67 15s. 5d. The progress has been encouraging; and there is evidence that, provided the milk consumers are prepared to pay a slight increase in price for tubercle-free milk, the dairymen will continue the trouble and expense involved by the scheme. The success of the movement must now largely depend upon the public's support.

THE GENERAL HOSPITAL.

The statistical report for the year 1909 shows that there were 5,511 in-patients treated, and of these 3,164 were cured, 1,042 relieved, 500 died, 162 unrelieved and incurable, 348 transferred to the Jaffray Branch Hospital, and 295 remaining in the hospital at the end of the year. There were 64,318 out-patients, making a total of 69,829. The medical in-patients numbered 1,661, the surgical in-patients 3 319, and the gynaecological in-patients 237. Among the medical in-patients there were 102 cases of pneumonia, of whom 4 died, and 53 cases of bronchopneumonia, of whom 14 died. There were 32 cases of typhoid fever with only 2 deaths. The cases of rheumatic fever numbered 71, and of these 45 were acute, 24 subacute, and 2 chronic. There were 24 cases of malignant tumour, distributed as follows: 1 of lung, 1 of mediastinum, 2 of oesophagus, 11 of stomach, 3 of intestines, 1 of rectum, 1 of pancreas, and 4 of liver. The total deaths on the medical side numbered 215, and 8 other patients were brought in dead.

Among the surgical patients there were 148 cases of malignant tumour, and of these 97 occurred in males and 51 in females. Sarcomata were found, 3 in the breast, 2 in testes, 1 in adrenal gland, 1 in ileo-caecal valve, and 14 in bone. Carcinomata were found, 2 on lips, 1 on palate, 4 floor of mouth, 12 tongue, 4 larynx, 12 oesophagus, 2 skin, 1 nipple, 5 penis, 6 glands (secondary), 10 stomach, 4 pylorus, 16 intestines, 23 rectum, 1 pancreas, 3 liver, 1 kidney, 3 urinary bladder, 1 prostate, 1 peritoneum, 48 female breast, 1 vagina, and 5 uterus. The operations on the abdomen numbered 757. Of these, death followed in 114 cases, or a mortality of 15 per cent. There were 31 deaths from suppurative appendicitis out of 193 cases operated upon, a mortality from this disease of 16 per cent. Eighty-five cases of appendicitis were operated upon in the quiet interval with no deaths. Out of 679 cases similarly treated during the last five years only 1 death has been recorded, and this from acute thyroidism. On the stomach and pylorus 98 operations were performed. They included 1 partial gastrectomy for carcinoma; 6 gastrostomies for stricture of the oesophagus, with a mortality of 66 per cent.; 1 gastro-gastrostomy for hour-glass condition of the stomach; 12 operations for perforated gastric and duodenal ulcers, 10 in males and 2 in females, with a mortality of 50 per cent.; 4 gastro-jejunostomies for carcinoma; and 74 gastro-jejunostomies for simple inflammatory conditions, 37 of each sex, of whom 9 died.

In the gynaecological ward 237 cases were treated, and of these 173 were cured, 27 relieved, 20 unrelieved, and 17 died. There were 31 cases of carcinoma, including 22 of the uterus, 6 of the ovary, 1 each of the vagina, vulva, and colon. There were 12 cases of tubal gestation, with 1 death. Of the operations performed, there were 128 abdominal sections and 111 vaginal sections.

The number of cases of anaesthesia was 3,687. Ether alone was given 98 times, ethyl chloride and ether 215, E_2C_1 and ether 36, nitrous oxide and ether 12, chloroform 830, E_2C_1 837, ethyl chloride and ether, E_2C_1 204; ethyl chloride, ether, and E_2C_1 204; ethyl chloride 477, nitrous oxide 334, and various other sequences or mixtures of ether and chloroform 609. Spinal injection was made in 6 cases, and local anaesthesia used in 169 cases. There were 4 fatalities during anaesthesia—(1) A woman, aged 50, died during operation under chloroform for mastoiditis and cerebellar abscess. (2) A man, aged 43, died under chloroform administered for proposed operation for ulceration of the scrotum. Death was probably due to asphyxia caused by the breaking down of a gumma inside the trachea. (3) A man, aged 59, died during administration of chloroform for proposed excision of the tongue. (4) A woman, aged 20, died under ether during laparotomy for general peritonitis.

The total number of radiographs taken and examinations made in the *x*-ray department was 674. Ten radiographic examinations of the abdomen were made after the administration of food containing bismuth. The cases for *x*-ray treatment numbered 168, consisting of the following: Lupus 56, carcinoma 15, acne 1, rodent ulcer 24, sycosis 3, warts 1, ringworm 61, mole 1, glands of neck 5, Hodgkin's disease 1.

At the Jaffray Branch Hospital 390 patients were treated, with the following results: 219 cured, 92 much relieved, 7 relieved, 10 died, 9 transferred to General Hospital, and 53 remaining in hospital at the end of the year. There were 144 medical and 240 surgical cases.

LIVERPOOL.

MISS FLORENCE NIGHTINGALE.

A SPECIAL service in memory of Miss Florence Nightingale was held at noon on Saturday, August 20th, in St. Peter's, the parish church of Liverpool. There was a large congregation, consisting mostly of nurses in uniform. Many medical men and hospital officials were present.

It is proposed to enlarge and develop the work of the Liverpool Victoria District Nursing Association as a permanent memorial of Miss Nightingale. The association was formed by Mr. W. Rathbone and others with Miss Nightingale's advice and help, and was always an object in which she was much interested.

BROWNLOW HILL WORKHOUSE AND DR. ALEXANDER.

Dr. William Alexander has resigned his post of Medical Officer to the Brownlow Hill Workhouse, with which he has been connected for thirty-eight years. This post is probably unique as regards both the amount of work to be done and the conditions under which it has to be done. Dr. Alexander has at Brownlow Hill about 600 beds under his charge, the patients are mostly surgical, but he has lock wards, a maternity ward with about 450 cases per year, a baby ward for infants under a year, an asylum ward, and a ward for male epileptics. Dr. Alexander has published an account of his work during the years 1900 and 1901. During these two years 17,923 cases were treated, with a 5 per cent. mortality. There were 694 operations, ranging over the whole domain of surgery, and including abdominal operations, Caesarean section, and eye operations. It is especially in the treatment of chronic diseases that the workhouse surgeon has had his greatest triumphs, curing and restoring to society as workers cases which otherwise would be hopeless encumbrances on the community. One of the features of Dr. Alexander's work has been that he has done it all himself—the smallest operation as well as the largest. Dr. Alexander's post has entailed work outside the Brownlow Hill Workhouse, such as the organization and care of a convalescent branch for children suffering from ophthalmia in the outskirts of Liverpool, a camp for boys under 15 at Maghull, and for a long time he had a labour colony for epileptics at Maghull also. This gives some idea of the work of the post Dr. Alexander now resigns, but by no means completes the tale of his labours, for, in addition, he has been one of the honorary surgeons to the Royal Southern Hospital and medical referee for some of the largest insurance companies, including the Prudential. While possessing a large private practice, Dr. Alexander has found time to contribute to surgical literature. His operation for shortening the round ligaments is known all over the world. He was Jacksonian Prizeman in 1881, his subject being the pathology and treatment of diseases of the hip-joint. He also gained the Astley Cooper Prize for an essay on chronic rheumatic arthritis. Dr. Alexander has also

written on the treatment of epilepsy. It may be asked, How could one man accomplish so much? The key to his power has been magnificent physique and health, an untiring industry and enthusiasm, rigid punctuality, and method, with the minimum of talk.

OXFORDSHIRE.

Tuberculosis in Oxfordshire.

At a recent meeting of the Henley Rural Council the following letter was read from Dr. Osler on the subject of consumption:

Oxfordshire County Association for the Prevention of Tuberculosis.

May I ask you, on behalf of the above association, to lay this letter before your Council at its next meeting? In view of the prevalence of consumption, and the absence of any adequate means for its relief or prevention, the Radcliffe Infirmary has determined to devote certain hours of its out-patient department each week to the treatment of consumptives only coming from all parts of the district. It will mean a large increase of its work, and this association is undertaking to make good to the Radcliffe Infirmary any loss it may thereby incur. A doctor will be in charge, who will devote himself solely to this department and to preventive work in consumption, in close co-operation with the infirmary and the sanitary authorities. The Oxford City Council has granted £100 a year towards his salary. The association would ask the district councils throughout Oxfordshire to co-operate in this work by making yearly grants of perhaps £10 to £15, according to the population they represent—suggesting that councils representing over 5,000 persons should contribute £15 a year—and by this means to provide a fund of £150 a year, which will be needed to raise the doctor's salary and allowances to £250. Will your council give this matter its serious consideration? An early answer, if it be favourable, will make the immediate appointment of a doctor possible, and he can enter without delay on the special training which this work will need either at Edinburgh or in some centre where preventive work in consumption is already in full activity.

I am, yours very truly,
Wm. Osler.

With the letter was a table of the number of deaths from tuberculosis in Oxfordshire. In Henley borough there was a population of 5,984, of which there were six deaths from tuberculosis in 1909, when the deaths from all causes were 88. In the Henley rural district the population was 9,123, and the deaths from tuberculosis 14, and all other causes 126. The clerk was instructed to write and ask under what conditions would patients be admitted to the hospital if they subscribed the necessary £10 or £15?

STAFFORDSHIRE.

Lead Poisoning in the Potteries.

In a volume of appendices to the report of the Departmental Committee on Lead Poisoning, etc., in the Potteries, Dr. G. Reid, of Stafford, deals with the death from phthisis and diseases of the respiratory organs among workers in the six pottery towns in Staffordshire. The mortality in these six localities from phthisis among male potters is more than twice that among other artisans, and more than two and a half times that among other occupied males. As regards respiratory diseases, the death-rate among male potters is more than twice that among other artisans, and more than three times that among other occupied males. The proportionate death-rate of female to male potters in Longton from phthisis is 0.782 to 1, and the corresponding ratio as regards respiratory diseases is 0.321 to 1. According to the Home Office returns, the number of female potters in the Potteries is practically the same as male potters (23,901 and 23,565 respectively). Dr. Reid says that if, therefore, as is generally believed, the chief factor in causing this high mortality from lung diseases among potters is dust, very stringent measures should be taken to ensure that all reasonable precautions to reduce the dust in the atmosphere of pottery works to its smallest possible limits are adopted. The death records in themselves only partially indicate the injury inflicted, for in most cases deaths from such causes are preceded by years of suffering. Comparing the fatality caused by lead in the six towns in question during the period covered by the figures given, it is found that during the three years 1900–1902, 13 deaths among both sexes were recorded from lead poisoning in the Staffordshire Potteries. Dividing this number by three to make it comparable with the annual deaths from lung diseases in the same district, the figures stand as follows:

Annual deaths from lead poisoning among all potters	4.3
Annual deaths from lung diseases among all potters in excess of deaths from same cause among male artisans	148

Dr. Reid adds that the injury attributable to working in lead appears to be only 2.9 per cent. of that resulting from other causes incidental to the pottery trade. He points out that illness as well as death has to be considered, but the 4.3 deaths occurring annually from lead poisoning represent the deaths among the 5,299 lead workers of all ages in the Staffordshire Potteries, where the 148 deaths from the two classes of lung diseases have to be considered in relation to the total number of occupied potters, although the deaths relate to the age-period—25 to 65—only, because it is during such age-period that the injury as regards lung diseases attributable to occupation is likely to manifest itself.

Scotland.

[FROM OUR SPECIAL CORRESPONDENTS.]

Seaforth Sanatorium.

The second annual report of this sanatorium has just been issued. It is perhaps the only sanatorium in the kingdom which has been built, endowed, and receives free for treatment men and women who are suffering from tuberculosis in the incipient stage, the only condition as to admission being that the applicants must be resident in the County of Ross-shire. The Superintendent, Dr. MacLean, states that the year under review has been gratifying. The number of patients treated has increased. There were 42 cases. Of these, 17 have been much improved, 10 cases arrested, 8 showed no improvement, 7 cases were worse on discharge. Of the 10 cases arrested, all are working for their living; 6 have gone abroad.

Proposed New Sick Children's Hospital for Aberdeen.

The Directors of Aberdeen Sick Children's Hospital, having long had in view the pressing necessity for a new hospital building, formally resolved, at a special meeting held on August 23rd, to take immediate steps for the provision of such a building, and appointed a subcommittee to consider and report as to the best methods to be adopted to carry the resolution into effect.

Cholera Scare in Fifeshire.

From exhaustive inquiry and examination the Local Government Board officials are satisfied that there is no cholera in Fife.

The case which gave rise to the rumour that cholera had broken out is that of a miner who resided at Kelty. In the report which the Local Government Board has received on the matter, it is stated that the patient is 38 years of age. He became ill about a fortnight ago with severe diarrhoea, and he showed other symptoms somewhat resembling cholera. Some ten years ago he was invalided home with dysentery from South Africa. His previous attack resembled his present illness. The Medical Officer of Health for Fifeshire is now quite satisfied that the case is not one of cholera. The patient, the report adds, has now considerably improved.

The Local Government Board is satisfied that every precaution has been taken to protect the public health in connexion with the case. A few days ago the Board issued to all the ports in Scotland a circular directing attention to the continuance of cholera in certain parts of Russia. Some time ago the Board caused an inspection to be made of all the ports in Scotland with a view to seeing that orders in connexion

with plague, cholera, and yellow fever were being stringently administered. Reports in this connexion were entirely satisfactory.

INVERNESS-SHIRE: MEDICAL INSPECTOR OF SCHOOL CHILDREN.

Dr. Gordon A. Lang has been appointed School Medical Inspector for the mainland of Inverness-shire, at a salary of £250 per annum, rising to £300, with the usual travelling allowances. Dr. Lang has been Medical Officer to the Inverness Burgh and Landward School for some years past.

GLASGOW AND AIR PURIFICATION.

Another step in the campaign on behalf of air purification in Glasgow has been taken by the Corporation of the city in deciding to supply gas fires for heating purposes on the hire-purchase system. Hitherto only cooking stoves have been hired out by the Gas Committee, and the heavy expense of installation of heaters has militated against gas being utilized by the great mass of the community for heating purposes. The easy facilities now afforded apply to both cookers and heaters. Payments are to be made in twelve instalments extending over four years. The Smoke Abatement Exhibition of gas stoves of all kinds arranged by the Corporation ought to give an immense fillip to the popularizing of gas appliances. In 1903–4 the Gas Department had on hire 26,657 cookers, whereas last year they had 52,700, with an addition of 15,100 free grills. Since last year 4,000 more stoves have been in use and 5,000 more grills. The outlook is therefore highly encouraging, and the Corporation expect that within two years there should, with the facilities for the use of gas which are now offered, be a highly appreciable difference in the city atmosphere. This is not an experiment which will cost money to the ratepayer, as the Gas Department, despite the low price of gas, is a very lucrative one, and the increased use should therefore be financially profitable as well as advantageous from the health point of view.

INSPECTION OF GLASGOW'S SEWAGE WORKS.

The annual inspection of the Glasgow Corporation Sewage Purification Works at Shieldhall took place on August 23rd. The works are situated on the bank of the Clyde, and comprise an array of tanks in which the sewage is treated, all the machinery being driven by electric power. From the tanks the sludge is taken by pipes to the wharf, where it is loaded on sludge steamers and taken for discharge to the outside of the Firth of Clyde. A number of representatives of neighbouring burghs were present at this the first inspection of the Shieldhall completed works, this southern scheme being completed last May at a cost of over two and a quarter millions. The company were taken over the works, and thereafter embarked on the new sludge steamer for a run down the Firth. They were entertained to luncheon, during which the Convener of the Sewage Committee took occasion to make reference to the completion of the whole Glasgow scheme for the purification of the River Clyde, and hoped that adjacent authorities would now do their due share of this work. Failing this, it would be necessary to use compulsion. The Lord Provost also spoke on the subject, and said that it was absolutely necessary that all the authorities on the watershed of the Clyde who had not tackled the question should do so at once if they were to have a pure river. The schemes must not only be purification schemes but efficient ones, which he had good reason to believe some were not. It would be regrettable if, after the enormous expenditure of Glasgow, they were not to have the benefit of that expenditure; and neighbouring authorities must do their bounden duty in this important matter. The Provosts of Renfrew, Partick, Govan, and Pollokshaws also spoke in approval of Glasgow's great municipal undertakings and the benefits accruing to the community.

CORPORATION MILK DÉPÔTS IN GLASGOW.

The recent annual report of the Medical Officer of Health for the City of Glasgow, in referring to the Corporation milk dépôts, pointed out that the number of infants receiving dépôt milk was not increasing, and that the average period in which the milk was used was short. Further, comparing the weights of children coming to the infant consultations, it was found that those children brought up on the dépôt milk did not compare favourably with children receiving other substitutes for mother's milk. As the milk dépôts are run at a financial loss, the question of continuing them in view of this report was brought up by the Infant Mortality Committee, which recommended that the milk dépôts should be discontinued. After receiving the approval of the Health Committee, their finding was eventually adopted by the council despite considerable opposition by those in favour of continuing the dépôts.

Ireland.

[*FROM OUR SPECIAL CORRESPONDENTS.*]

ANTITUBERCULOSIS CAMPAIGN.

THERE was a large attendance at the formal opening of the Allan A. Ryan Home Hospital for Consumption, Pigeon House Road, Dublin, by the Lord Lieutenant, on August 23rd. The home is surrounded by a couple of acres of land, and will accommodate twenty-five patients. Its establishment constitutes another of the important steps which the Women's National Health Association has lately been taking in providing hospital accommodation for advanced cases of pulmonary tuberculosis. Until the commencement of the present campaign the only steps that had been taken in dealing with the tuberculosis question consisted in the establishment of sanatoriums for the treatment of early cases, while advanced cases, which are obviously unsuitable for admission to ordinary hospitals, were, for want of accommodation elsewhere, compelled to remain in their own homes, where they constituted a source of danger to others. Before long, however, those interested in the antituberculosis work, which was inaugurated by Lady Aberdeen, realized that if any diminution in the number of cases of tuberculosis was to be attained it was all-important to deal with the existing advanced cases, and, in consequence, while still actively engaged in providing means of cure for early and incipient cases, of late the association has been largely occupied in endeavouring by various means to remove or render innocuous the sources of infection referred to. The buildings of the Allan A. Ryan Home are the property of the Dublin Corporation, and were originally erected as an isolation hospital, but as they had been lying idle for some years, the Corporation decided to hand them over to the Women's National Health Association on the understanding that should the buildings be required during the course of any serious epidemic they will be vacated in twenty-four hours. The funds for maintaining the home have been provided for a period of five years by Mr. Allan A. Ryan of America, and by an expenditure of £700 a thoroughly up-to-date equipment has been installed. The increasing interest taken by the public in this and other antituberculosis projects augurs well for the future.

TYPHUS FEVER EPIDEMIC.

An outbreak of typhus fever, which for a time threatened to assume serious proportions, is reported on the islands of Lettermullen and Gorumna, off the coast of Galway. Eighteen cases so far have been reported, and eight deaths have occurred. The Local Government Board Medical Inspector who visited the district early found that the patients were in a serious state for want of proper attention, as owing to the remoteness of the district adequate nursing assistance was almost unprocurable. To some extent, however, the difficulties have now been surmounted. The local medical men are hard at work, and are aided by two Dublin nurses, while permission has been obtained to make use of the Lettermullen National School as a temporary hospital. At the last meeting of the Oughterard Board of Guardians only one fresh case was reported.

Infant Mortality.

A largely attended conference on infant mortality was held last week in Dublin under the auspices of the Dublin branch of the Women's National Health Association, and was presided over by Her Excellency Lady Aberdeen. In opening the proceedings Lady Aberdeen stated that the conference had been summoned with the object of making the citizens of Dublin face certain facts. The first of these facts was a very pleasant one, namely, that the infant mortality throughout Ireland compared favourably with that of other countries. Unfortunately, however, very little credit could be taken for this state of affairs, for on further examination a second fact revealed itself, and that was that the infantile mortality in the big cities —Dublin, Belfast, and Cork—was exceptionally high, and that a great proportion of this mortality was due to preventable diseases. Of late years certain steps had been taken by the National Health Association to remedy this state of affairs by the establishment of a babies' club, the institution of special lectures, and by means of a pasteurized milk dépôt; but much more required to be done, and it was felt that the present time was a favourable one for considering the question in view of the fact that the Notification of Births Act had just been adopted by the Dublin Corporation. It was probable that many voluntary workers would be required to make the Act effective, and such workers the association was ready and willing to provide. She hoped that all intending workers would pay close attention to the methods adopted elsewhere, as told by the subsequent speakers. The Hon. Mrs. Bertrand Russell next addressed the meeting, and gave an account of the work of the St. Pancras School for Mothers. She was followed by Lady Plunket, who has lately returned from New Zealand, and who was able to speak of the results achieved in that country by the work inaugurated by Dr. Truby King. By the establishment of a special infants' hospital and by the appointment of special nurses, each one of whom is able to look after about 350 babies, the Society for the Health of Women and Children in New Zealand has been able materially to lessen the infant mortality. Each nurse before being permitted to engage in the work gets three months' special training, and has to pass a severe examination on the general care of infants, more particularly the scientific methods of infant feeding. A letter was read next from Sir John Byers referring to the work now being carried out in Belfast, and the proceedings then terminated with votes of thanks to the Hon. Mrs. Russell and Lady Plunket.

Ambulance Competition.

The annual competition for the Dublin Ambulance Challenge Cup was held recently in Lord Iveagh's gardens, and was competed for by ten teams composed of men holding the St. John Ambulance first-aid certificate. The cup was first presented in 1906 by Lord Iveagh, and has always evoked keen rivalry. On the present occasion it was won, after a close contest, by the team of the Belfast Fire Brigade.

Belfast District Lunatic Asylum: Annual Report for 1909.

The Resident Medical Superintendent (Dr. William Graham) has recently issued his annual report of this institution. The total number of patients on December, 31st, 1909, was 1,217, of whom 764 were in the old asylum, 395 at Purdysburn, and 58 in Ballymena. The total increase over last year was 6 males and 24 females. The percentage of recoveries was 33.1 among the males and 36 among the females; 110 deaths occurred, but there were no fatal cases of suicide or accident. Dr. Graham again draws serious attention to the increase of insanity; in Ireland the ratio of the insane to the general population has increased from 1 in 850 in 1861 to 1 in 180 at the present day. Such figures may be partially due to better methods of registration, closer oversight, and similar changes, but the fact cannot be disputed that there is a real and serious increase. He estimates the number of insane to-day in Ireland as 160,000; "but in addition there is an increase in nervous and mental trouble, which, though not amounting to insanity in a technical sense, is nevertheless a serious menace to society." This is surely a terrible burden for a poor country like Ireland to bear. Dr. Graham insists that this increase in insanity is not an inevitable product of our so-called higher civilization, but of the long continued disturbance of mental equilibrium and the persistent moral unsettlement that accompanies the activity. The remedy, he thinks, lies in a better and more rational education, especially in a true moral education of self-knowledge and self-control. He thinks that roughly 25 per cent. of insanity would be wiped out if the present generation became total abstainers and the scientific aspect of the alcoholic question were universally known. Ultimately heredity, instead of being a curse, might be taken advantage of and become a blessing. As regards treatment, properly supervised farming and gardening work yields undoubtedly the best results in the case of patients physically fit.

Reference is also made to the proposed home for sane epileptics, and to the completion of the villa system at Purdysburn, when the old asylum on the Grosvenor Road may be given up, and all the inmates lodged under one roof. The net capitation cost amounts to £20 15s. 1d. per annum, or £10 11s. 7d. to the ratepayers when we deduct the various receipts from other sources. A most appreciative memorandum on his inspection by Sir G. P. O'Farrell is also included.

University College, Cork.

Miss Honan has very generously placed at the disposal of this College the magnificent sum of £10,000 for the foundation of scholarships to be named the "Honan Scholarships," the first awards of which are to be made in the coming October when the College opens for the Session. It is Miss Honan's wish that these scholarships should be allocated so as to be of service to needy and deserving students of Munster. This is the first response to the request for money which the President made at the first conferring of degrees in May last. The worthy example set by Miss Honan ought to be an incentive to those who are able to do the same. Miss Honan's generosity is well known in the City of Cork, and it seems only a few years ago since she paid the expenses of a magnificent new operation theatre for the North Infirmary, Cork, which is the pride of that institution.

Shanghai.

[*FROM OUR SPECIAL CORRESPONDENT.*]

Annual Report of Health Department for 1909.

The annual report of Shanghai Municipal Council for the year 1909 has just been issued; it is compiled by Dr. Arthur Stanley, Health Officer.

The staff of the Health Department of Shanghai seems to be sufficient in numbers and well organized. Besides the chief health officer there are two qualified assistants, four sanitary inspectors, and thirteen assistant inspectors, with a Chinese sanitary staff numbering 720. Dr. Stanley reports that the condition of the public health during 1909 may be considered satisfactory. Though threatened with plague, the crucial period was passed without the occurrence of human cases. The reason for this immunity is not obvious. Shanghai and the Yangtse ports have by some been considered to possess a special immunity from plague, but there would appear to be little to support this idea. The occurrence of plague in Hankow and Wuchang tends to show that no such special immunity exists, and to think that it does is calculated to give a false idea of security. The absence of human cases of plague, therefore, may be attributed to the difficulty with which plague naturally spreads and to the sanitary measures taken against it. It is known that plague among rats may exist for some years before it breaks out among human beings, so that measures against rats are called for as long as plague-infected rats can

be found. There is no finality about measures of rat destruction, but by rat-proofing houses plague may be permanently built out. This and the keeping of cats are probably the two most permanently useful measures against plague in Shanghai.

The question of rat-proofing was referred to a committee of property owners, but, as the initial expenditure of effectual rat-proofing was seen to be large, and in the absence of any immediate danger from plague, the matter was not discussed in a way conducive to the adoption of radical measures. In the matter of rat-proofing houses, Dr. Stanley remarks, nothing can be conceded to individual parsimony. Steel and concrete are the ideal materials for houses in any town threatened by plague, and, in considering the cost, the immunity also from fire and earthquake may also be considered.

Regarding laboratory work, Dr. Stanley says that the field of pathological research in China is practically unworked. There could be no greater primary benefit to the health of the community than that which would result from continuing to make the Shanghai Municipal Laboratory a place for research work.

The rat has not been the only animal against which action has been taken for the benefit of the health of the settlement. The mosquito has received an augmented degree of attention, as also has the domestic fly, which is an obvious danger as a carrier of infection. Regarding mosquitos, an extended plan of campaign was carried out. In addition to the elimination of stagnant water, which has been going on for several years, direct measures were taken against the propagation of mosquito larvae on private property by house-to-house visitation of a special mosquito extermination staff.

Vital Statistics.

The death-rate among the resident foreign population during 1909 was 16·7, as against 15·9 in 1908, whilst that among the native population was 15.1. On the whole, we must consider this a very satisfactory death-rate.

Tuberculosis heads the list of fatal diseases both among foreigners and natives, and calls for a measure reducing the overcrowding which is so apparent in the settlement.

Dysentery and beri-beri are accountable for a number of deaths.

There were no cases of plague, although plague-infected rats were found throughout the year.

Infectious Diseases.

There were only 90 cases of infectious disease notified among the resident foreign community. The incidence of small-pox has been exceptionally small. One case only was notified among the foreign resident community. Among the Chinese there were 19 deaths from small-pox—a very marked diminution as compared with 143 and 863 during the previous two years—the reason of this decrease being due to the fact that the Chinese are beginning to appreciate the benefits of vaccination as opposed to inoculation, which they have practised with little benefit for hundreds of years, and which is now illegal in almost all civilized countries.

Vaccination is done free for all Chinese and indigent foreigners applying at the Health Office. Vaccine is also supplied free to the Chinese hospitals in Shanghai; 3,244 vaccinations were done at the Health Office during the year.

Plague-infected rats having been found in December, 1908, a complete plague survey of the settlement was maintained throughout the year; 17,364 rats were found dead, and brought to the Laboratory for examination, and of these 187 were plague-infected. Stringent measures were adopted for the destruction of rats, the result being that nearly 92,000 were trapped and burnt.

Public Health Laboratory.

Full advantage seems to be taken of the Municipal Laboratory, and no pains have been spared to develop its resources. The matters which have been under investigation have been the causes of variation in virulence of small-pox vaccine, cholera antitoxic serum, preventive inoculation against cattle plague, and the causation of beri-beri, etc.

The diagnostic service has been used extensively during the year, 18,265 specimens being examined. Besides, samples of milk were examined and various foods and liquors.

Glycerinated vaccine lymph has been widely distributed throughout the settlement and adjoining countries.

Two horses are kept for the production of diphtheria antitoxin, and a good degree of immunity has been established, using Park's diphtheria bacillus for the production of the toxin; 1,022,000 units were sent out from the Laboratory to meet the needs of Shanghai and the outposts.

A very pleasing feature in connexion with the Laboratory is the Shanghai Pasteur Institute, which was opened in 1899. During the year 1909 28 persons were treated; in all 268 persons have received treatment since the opening. Ten of the cases treated last year were the result of dog-bites within the settlement, and, so far as is known, have escaped hydrophobia.

Hospitals.

The year has seen a further extension of the municipal hospital system, the object being its concentration in the vicinity of the isolation hospital and nursing home, so as to facilitate supervision by the assistant health officer in charge and to co-ordinate the work of the Health Department.

The cases treated in the isolation hospital during the year numbered 551; of these, 47 died, the largest number of deaths being due to beri-beri.

Public Health Work.

Public health work throughout the settlements is carried out very efficiently, despite the indifference, and in many cases opposition, of the Chinese community. It is hoped, however, by a system of sanitary education, so to speak, the natives will be taught that cleanliness, both as regards themselves and their surroundings, is absolutely essential for the proper maintenance of health.

The foreign sanitary staff consists of four inspectors and sixteen assistant inspectors. Mention has already been made of the measures taken regarding the destruction of rats. There has also been a crusade against mosquitos and the domestic fly.

In connexion with mosquito extermination work, the sanitary staff must have had a busy time judging from the work done; 2,204 stagnant waters on land were removed, 149,529 stagnant waters in and around houses removed, and no less than 109,893 stagnant waters oiled weekly.

The crusade against the domestic fly was directed to the careful collection and disposal of house refuse; also in licensed premises the proprietors were required to prevent the access of flies to foodstuffs by the use of perforated windows and spring doors.

The circulation of public health notices in Chinese has been found to be a good way of propagating sanitary knowledge. Each district has its fugleman, whose duty it is to collect crowds round him by means of a bell in the alleys and tea-houses, to whom he recites the notices appropriate to the occasion.

We have seldom perused a health report in which there is so much evidence of thorough work done, and, as the results show, the health of the settlement is in a satisfactory condition, the death-rate comparing favourably with many English towns. We notice, in connexion with the death-rate, that no notice is taken of uncertified deaths; many such must occur in the settlement, and, if we add unregistered deaths, it is quite possible the death-rate would be higher than the statistics before us show.

We are sure this has not escaped Dr. Stanley's notice, and possibly in next year's report some reference will be made to uncertified and unregistered deaths.

India.

[*FROM OUR SPECIAL CORRESPONDENT.*]

MEDICAL MEMORIALS TO THE KING.

As was foreshadowed in previous issues the proposed provincial memorials to the late King are rapidly taking the form of medical institutions, in accordance with the well-known sympathies of Edward VII for hospitals. In Bombay it has been decided to build a new hospital in the north of the island, where it is much wanted, owing to the rapid extension of the poorer quarters in that direction. As it is likely to be placed near the Parel Bacteriological Laboratory, this suggestion will have the further advantage of bringing the research institute into much closer touch with clinical work. In the Punjab at a recent meeting the Lieutenant-Governor urged a proposal to bring the Lahore Medical College up to date by numerous much required extensions as the fittest memorial, as it would benefit every race and the whole province by supplying better qualified medical men for the relief of suffering. This suggestion was adopted unanimously by the meeting and 5 lakhs promised on the spot by Indian noblemen, in addition to numerous smaller sums, while the district of Amritsar has already contributed 40,000 rupees to the fund, and other districts are following suit. One of the professors of the medical college has been deputed to visit the other medical schools of India during the vacation months to collect information which will be of great value to the committee in working out the new improvements at Lahore. In the United Provinces the Lieutenant-Governor was in favour of a sanatorium for consumptives in the Himalayas, this province being particularly well off for hill stations suitable for this purpose. A meeting recently held at Aliahabad, after hearing an address on the subject by the Inspector-General of Civil Hospitals, unanimously adopted this proposal for a sanatorium, which will be of immense benefit to the province. The liberal response a few years ago to an appeal for funds for the Lucknow Medical College leaves no doubt that the United Provinces' present memorial will be equally generously supported. In Madras the suggestion for a sanatorium as a memorial has now been definitely adopted by the general committee, on a motion moved by Surgeon-General Benson, I.M.S. It will include both a hospital for advanced cases—who are such a great source of infection in overcrowded native houses—and a sanatorium in a suitable hill station for early curable cases: a happy arrangement which should in time exert a powerful influence in diminishing this scourge of all races and countries, and which so often runs a rapid course in debilitated subjects in the tropics. The Madras Government has set an excellent example to other provinces in promising a very liberal contribution towards the memorial. A meeting has also just been held in Dacca to consider the best form of memorial for Eastern Bengal and Assam. It was generally agreed that it should take the form of some institution for the relief of human suffering, either in the form of a Pasteur institute for Assam or a modern well-equipped hospital at Dacca. The latter alternative was favoured by the Chief Secretary, who presided, as it is most urgently wanted, and will pave the way to the founding of a medical college for the province in the place of the present school for the training of hospital assistants only. Over 3 lakhs of rupees have already been subscribed in Dacca towards the memorial, so sufficient funds may be available for the more ambitious scheme of a hospital worthy of the capital of the new province.

Every large province, with one notable exception, has thus decided in favour of some form of humanitarian medical institution as the most fitting form of memorial to the late King. Bengal alone remains undecided, and here a curious state of affairs has arisen. As has already been reported, the press were practically unanimous in supporting one or other of the suggestions put forward for an institution for the relief of suffering, but at a meeting held at the official residence of the Lieutenant-Governor, his Honour spoke at length criticizing each of the medical proposals. On the ground that a sanatorium for phthisis could not be placed within the province for climatic reasons, he condemned this proposal, at the same time refusing to accept the opinion of the medical profession that tuberculous diseases are terribly prevalent in Bengal, and that, too, in spite of the resolution unanimously passed at the Medical Section of the Asiatic Society of Bengal last year. He summarily dismissed the proposal for an institute of medical research, on the score of the expense its upkeep would entail. He then put forward a proposal of his own to devote the sums subscribed by all races for building a hostel for the native students of the Government Presidency College. As was pointed out the following day by Canon Browne, of the Oxford University Mission, this scheme would only benefit the best-to-do of the students of a single race, who, it is also well known, are the most seditiously inclined in India. The outcry against this plan has been so unanimous that perseverance with it can only lead to the withdrawal of the European community from participating in it. At the last meeting of the Executive Committee it was resolved to call for details regarding the various proposals put forward, one of the latest of which is a sanatorium for the treatment of convalescents from Calcutta and other hospitals at Puri, on the Orissa coast, where there is always a cool sea breeze. As this suggestion is not open to the objections raised by the Lieutenant-Governor to the other medical ones, there is a good chance of its being adopted as the best way out of the present impasse. At the original meeting 4 lakhs of subscriptions were announced, but the flow has received a sudden check, due to the uncertainty of the nature of the memorial.

Correspondence.

SICKNESS AND INVALIDITY INSURANCE.

SIR,—There will shortly be sent to the Divisions for decision a question of more import to the welfare of the profession than any we have had to consider in the last quarter-century, and it is greatly to be desired that the question shall be put in an understandable form, in order that the answer shall be really the voice of the Association. We have already had this question in an uncomprehensible form—to wit, "Are you in favour of a public medical service controlled by the Association?"—which most of us took as reading, "Would you rather have your clubs ruled by the British Medical Association or by the friendly societies?" This is very much like asking, "Do you prefer to die by opium or strychnine?" to which the Divisions, through the mouths of our leisured members (vide Dr. Lauriston Shaw), have replied, "Opium, by all means; it is a great advance in comfort on strychnine." So far true, and if we, the doctors of the poor, have to submit to see our private practice practically swept away and replaced by a vast extension of contract practice with its inevitable degrading conditions—degrading to patient as well as doctor—let us have opium—control by the British Medical Association. But there are signs (proceedings of Representatives: Dr. Keay, Dr. Parker, Dr. Metcalfe, Dr. John Brown, Dr. Pearse, and others) that some of us see a third alternative; and there are unmistakable proofs that the majority of the doctors concerned think that opium is so little better than strychnine that it is not worth fighting for. For example, Mr. Armit (p. 202) states that in Hampstead out of 400 or 500 practitioners only 30 or 40 would take the service, and Sir Victor Horsley (see my letter of April 16th, p. 966) corroborates this experience in other places. Now, to understand what the third alternative is, one has to consider the circumstances under which club or contract work arose and temporarily benefited the profession; how the conditions gradually changed until club work became a synonym for all that was bad; and how, lastly, the acceptance by the State of responsibility for the health of the nation eliminates all necessity for

a continuance of the club or provident system in so far as it concerns the medical man.

It is important to recollect that originally the doctors accepted clubs to benefit themselves; the clubs were instituted to encourage providence among the labourers; there was then, as now, a large class without any idea of thrift, who spent their wretched wage each week, and who in sickness had no savings with which to buy medical attendance; there was also then, as now, a widespread notion that the inhumanity of letting a man die in this rich country for want of medical aid was inhumanity on the part of the doctor, though why he should bear the opprobrium any more than the baker should be held responsible for any one dying of starvation is a mystery. Anyhow, the doctor had then, as now, to give his services with or without pay, and he hailed with mild enthusiasm the certainty of a small payment in lieu of the worry of bills and bad debts and the probability of getting nothing at all. *He* at any rate recognized that he was giving charity out of his abundance; that is to say, with a practice of many patients paying good fees he could afford to take a few at a lower rate.

The next stage might have been foreseen: The better paid workman, seeing his fellow getting the doctor for 4s. a year while he himself had often a bill of £2 or £3 in the year, took up the club notion *con amore*, and with the bargaining power of numbers and the bribe of the club's bringing also private practice among the members' families, compelled the doctor to accept the extension of the club system as inevitable. The next stage was female and juvenile lodges. The resultant diminution of private (adequately paid) practice vexed the doctor sorely, and he entered upon the hopeless fight for a wage limit to save as much of private practice as he could. The "battle of the clubs" waged fiercely if spasmodically, and the "club doctor," looked down on even by the club members, struggled dispiritedly with the overwhelming work that low pay compelled him to attempt. Outsiders wonder why he did not strike. How often has one heard the advice, "Why don't you combine"? but the fact is that besides being ashamed to make public his desperate condition (for in medicine perhaps more than in other spheres of activity a man's merit is gauged by his money-earning power), the club doctor was too much occupied in the struggle for existence (witness the pitiful reports of our Benevolent Society) to have time or energy to take part in the counsels of the Association.

Now comes light on a way out of all this stupidity of unequal charity, sweating, and bad work, but I fear that our Association has not realized what a totally different complexion the matter wears when the State decides *to relieve the profession* of the responsibility of seeing that every citizen has medical aid in time of need.

Gone is the *necessity* for clubs; gone is the necessity for charity; gone from the doctor's shoulders is the burden of representing in himself the nation's humanity.

The State says: "We recognize that thirteen millions of our citizens are paid too little to buy medical aid; it is inhumanity to let them want for it; we propose to give it them." Now *it is absolutely none of our business* whether the State gives this aid gratuitously or makes the workman contribute towards the cost; neither is it our affair what the ultimate cost to the State may be. (Dr. Belcher's otherwise admirable letter of August 13th is spoilt by the irrelevant advice (p. 408) that *the profession* should calculate the cost.) This is the State's business, and the less we go outside our own affairs the better for everybody. What we have to do is to acknowledge gratefully our relief from the imposition we have long borne, point out that the country is adequately provided with doctors in every hole and corner of Great Britain, that contract work has been bad for the public and for the progress of medicine as well as for the profession, that we are determined to have done with it, and that as long as our modest fees are paid we care not who pays them. We might perhaps add that if the Chancellor of the Exchequer (though accustomed to juggle with hundreds of millions of revenue and farthings of expenditure) finds himself unable to devise a cheap and efficient machinery for dealing with the payment of doctors' accounts, we regard it as not so intricate as paying the workman's sick pay (which *must* be done individually), and we shall be happy to give him the services of any of the several thousand brains which adorn our Association. What is all this talk of being ready with a "scheme" for supplying medical attendance, and this hastening to adjust the shackles to our hands by starting school clinics and provident societies? Are these not just the yoke we wish to get rid of? The profession has nothing more to do with "providence" once the State says it will be the workman's providence. Our sole business is to see that the services we give are really efficient and up to date (under any contract system they cannot be so), and that we are adequately paid for them. Let us get fixed in our minds that we have nothing to do except doctor people, and that provident societies and medical aid insurance are commercial speculations quite foreign to our legitimate business, only undertaken hitherto because the public and the State have shirked their plain duty; that charity (always inefficient and unjust) is, as Professor Moore says (SUPPLEMENT, p. 201), a false idea, and that we do the people as well as ourselves harm in supporting it, and we shall be free to move forward on a single line of action, and not spend ourselves in futile side-issues. That line of action is, as I indicated in my letter of April 16th ("A National Emergency"), to revert to the *status quo ante* clubs, to abolish all contracts for individual work, and to insist that our relations to the poor shall be the same that the rich have no hesitation in choosing as the best possible for themselves.—I am, etc.,

Bristol, Aug. 19th. HARRY GREY.

SIR,—I am sure that all your readers engaged in general practice will fully endorse the remarks of Drs. Kelly and Halstead in your issue of August 20th. The Burns-George-Churchill syndicate is out to catch votes. How they get them, or who suffers in the process they care not, so long as they get them. The poor—so-called—have far more pleasures in this life than the hard-working practitioner. What we are doing at the present time is to create an army of thriftless parasites.

When this question of sickness and invalidity insurance is raised, I hope the matter will be freely discussed at our Divisional meetings, and that for once we shall show a united front, and refuse to be sweated by the State.

Let Mr. George direct his attention to the members of his own profession, and interfere with their practices, and I am confident that he would be taught a lesson which he would not very soon forget. Already the Law Society has proved that the legal profession will not stand any slighting remarks about it, even if made by so distinguished a member as Mr. George. Let us take a leaf out of the book of our sister profession, and firmly resist this proposed intolerable abuse.—I am, etc.,

Bedford, Aug. 20th. S. J. ROSS.

SIR,—Reading with great interest the letters published in the BRITISH MEDICAL JOURNAL as to the new scheme of medical practice, may I, as wife of a struggling doctor, ask those other wives similarly placed to influence their husbands to protest against this scheme, which bids fair to deprive us of our already scanty incomes? No one seems to think what it will mean to us who are not blessed by being in the high ranks of the profession, or even have appointment practices. I am afraid we will not be asked to take a part in this new scheme, and the powers that be will appoint their own medical men at their own fixed salaries; then certainly our livelihood in most districts of London and elsewhere will have vanished in the near future. Now, why cannot our husbands, sons, and brothers make a firm stand for the profession of which we are so proud, insisting on fair share of work and proper remuneration for same? None can stand against us if we hold together and unite in our common grievance. Remember our poor brothers and sisters and the heartrending cases reported from time to time in this JOURNAL'S Benevolent Fund, and how many of us cannot provide for the future, however much we try. Take my own case. My husband is a highly-qualified man, and, in order to keep himself abreast of the times, has taken out Fellowship and post-graduate courses. Is he and others advancing in life to be deprived of the legitimate reward due to hard work, study, and experience, and stand aside whilst quite inexperienced, newly-qualified officials supplant him? Are we calmly to fold our hands and let others take the bread from our tables and pay rates to enable them to do so?—I am, etc.,

August 29th. A PROTESTING WIFE.

THE FALLING BIRTH-RATE.

SIR,—I should like to add a few words to what I had time to say in the Medical Sociological Section on July 29th. One speaker hinted that it might be well to forbid woman to labour at all. To have all women supported in idleness while men tended the young, the sick, etc., seems revolutionary, but probably what was meant was forbidding them to do remunerative labour. or so-called honourable (as opposed to menial) work. But in this democratic age we have reached, not only the right to live, but the right to work; and, moreover, unless the women are to be State-paid, there is rather too much sound here of sweating them into surrender to be quite in accord with modern ethics. Are men, too, really so unworthy that nothing but compulsion will make a woman mate with them? If women took some share in legislation and voluntarily subjected themselves to this kind of thing, it would be a different matter, but otherwise few would be found to advocate the drastic measures proposed by Mr. Balfour to the antisuffragists—namely, keeping women under lock and key and breeding them for only this one purpose, even though it should result in enforced motherhood and greater increase in the race. But what mankind does appear to wish for is the good old-fashioned domesticated woman, who is always represented as being content with looking after house and nursery. But the nineteenth century was time of great awakening, and as the father is one parent f his daughter, it is unreasonable to expect man to have ncreased his interests, and woman still to browse happily mong pots and pans. In early days a man hunted for his amily's food, but he is not degenerate now because he is a barrister and not a butcher, nor is a woman degenerate who does not add baking and brewing to her motherood. Even if the sacrifice of all the women led to a healthy race of men the cost would be too great; but, as it is, a warped, discontented mother is bad for her boys, and a race cannot rise, as Cromer says, above the level of its women.

Since, therefore, we cannot go back a hundred years, we have to decide whether it is best to increase the restraints now irksome to women, or to let her take her development into her own hands, and make herself in her own image and not the image man has made for her. It is unlikely that the removal of restraint will injuriously affect the natural function of motherhood; and when we ask woman to explain the apparent enigma of increased liberty coupled with falling birth-rate, she is ready with several solutions, two only of which there is space to touch on here.

The fact is, in the middle class matrimony has hitherto been bound up with much extraneous matter; in the upper classes a great chatelaine has always been able to delegate care of house and nursery to competent people; but, should a married middle-class woman go on with a profession or a lower-class factory work, and do the same, an outcry is raised. There is no intrinsic motherliness in superintending boiling eggs or sweeping rooms; it is only a maternal duty when there is no one else to do it. Training makes better cooks than love, and contrivance, common sense, and a common kitchen are rightfully setting the modern mother free. True, a professional woman making £700 a year will not jump at her first offer so eagerly as a companion on £12. The latter sees the man in an unreal glamour of escape from bondage; the former can marry the man for himself, and a rise in the standard of the fatherhood of the nation will be one result of this. The man need have even less money than formerly, for the wife's income will supplement it. If at first the modern woman, exulting in her freedom to serve the world by brain as well as heart, were tempted to think that matrimony would shackle her, a very little further advance brings her into line again with Nature. Just as a boy, difficult to train as an only child, learns discipline easily as a Boy Scout, so does a woman, cut off from world interests, consider only her own pleasures and pains, but when she learns to think cosmically, as she is learning now, she will do her part womanfully. So at any rate have I found it in numerous cases, and we have also reassuring evidence from New Zealand and parts of Australia, where after two or three years of woman suffrage, the birth-rate began rising and has risen ever since. In New Zealand in 1896 it was 25.74 per 1,000, in 1905 27.3. During this nine years' period, Hungary, Germany, Scotland, England, and Wales, all went down—England reaching 27.1. Nor is this because New Zealand is now the home of the unfit who are propagating after their kind, for social conditions are on the upgrade there. Not only have we statistics, but also the evidence of Lady Stout, the wife of the late Chief Justice, who ascribes the increasing birth-rate in part to the more settled feeling among the women who are now able to help mould the future as they desire for the good of their families. Dr. Fremantle, notwithstanding this evidence, hinted that this fact made women more reluctant to bring children into the world. I hope he will give us some proof of this startling proposition—it will need to be a convincing one, for a man with the best intentions is at so desperate a disadvantage in interpreting the motives of a woman in such a delicate matter.

Then a second great cause hindering matrimony is the restriction placed on married woman's labour. Surely if a paternal Government had been maternal as well, it would not have hit upon the strange device of penalizing matrimony and childbirth in order to promote and encourage them. A professional woman with £500 a year, knowing her skilled labour ceases on her marriage, postpones it until she has enough to ensure the safety of potential children should anything happen to her husband. Government appears to think she argues instead, "I'm going to marry; and as I am not permitted to work, I will employ my time in having as many children as possible, never mind how poor we may be." But families of four or five are very usual nowadays, even when a woman has no profession to entice her away from having more; and as a matter of fact, the dislocation in the work of a professional woman in having a family of this size would amount to little more than that due to a permissible amount of sick leave. If the highest functionary in the State—the Premier—with Cabinet and Commons, are too frail to take one week from a three and a half months' holiday to finish a suffrage discussion, waiting now forty years since a bill passed its second reading, we need not complain if a few times a woman has some extra weeks' leave to perform her highest function for the State.

Until women may work as they will, they should at least be entitled to some large share of the husband's income (they will spend it freely on the children when necessary), for galling dependence and the sense of commercial considerations entering into the most delicate relationship of life do deter some women from marrying, as men who chafe under paternal supervision should understand. In to-day's paper one sees an intimation that night work is to be stopped for women; what compensation is there to be for depriving them of their means of living? Are women to have no share in deciding their own fate before they are legislated out of existence? Yet most men agree that women are the hinge on which the birth-rate turns. As Lauriston Shaw says, "In these days of universal liberty it is useless to expect any to submit to the control of an authority in the selection of which they have no voice. It is impossible to secure intelligent interest . . . in policy and action unless there is given opportunity of framing such policy and dictating such action. Granted these . . . the more perfect the mechanism for discovering real wishes . . . the greater will be loyalty and discipline . . . upon which in a last resort all progress will depend."—I am, etc.,

H. B. HANSON, M.D., B.S.Lond.,
Assistant Medical Officer, London County Council.
London, N.W., Aug. 25th.

THE NATURE OF "EROSION" OF THE CERVIX.

SIR,—When the full report of the discussion on Professor Gottschalk's demonstration before the Gynaecological Section at the recent annual meeting of the British Medical Association is published, Dr. Jellett, whose letter appears in your issue of August 20th, will see that the brief account in the BRITISH MEDICAL JOURNAL of August 6th is not only incorrect, but in fact diametrically opposed to what took place.

As the matter has been given such prominence, and as I was the so-called "instructor," perhaps you will kindly allow me to put the matter right in a few words.

Professor Gottschalk gave a very lucid demonstration of a series of photomicrographs of what he called "erosion" of the cervix, and of what he considered the transition

stage, and the complete transformation of this condition into carcinoma.

I pointed out that the sections represented instances of *chronic cervicitis*, with one (I think) exception, which was a carcinoma; and that they certainly were not examples of what British gynaecologists had in the past termed "erosion," which is a definite adenoma, and should be known by that name.

An intermittent discussion followed between Professor Gottschalk, Professor Nagel, and myself, during which diagrams were drawn, and the whole matter threshed out. There is, however, no need to trouble you with the details.

Subsequently Dr. Comyns Berkeley and the President stated that I had fairly represented the view of British gynaecologists, namely, that the condition is adenomatous; and they pointed out that if the views of Professor Gottschalk and Professor Nagel represent those generally held in Germany, then the term "erosion" was applied in that country to a different condition from that known by the same name in the United Kingdom. Consequently it was suggested that this term (erosion), which is certainly a bad one, ought to be dropped entirely. I did not think any one present remained in doubt at the end of the discussion as to the relative views held by the speakers; but I believe your reporter's error was due to some delay on my part in forwarding the notes on which he had intended to rely for a correct interpretation of what was said.—I am, etc.,

Liverpool, Aug. 20th. W. BLAIR BELL.

A CAUSE OF DEATH AFTER OPERATION FOR APPENDICITIS.

SIR,—The theory advanced by Mr. Brown in his paper on a Cause of Death after Operation for Appendicitis has interested me very much, for in the *Lancet* (1909, vol. i, p. 1450) I published a paper on the Cause of Death after Operation in Acute Appendicitis, at a time when I, like Mr. Brown, was trying to solve the problem as to why some cases died with symptoms of a profound toxaemia, and why almost all the cases which were fatal in this way were in children. I do not propose now to enter into a discussion on the cause of the condition, for I have discussed it fully in this paper; but after reading Mr. Brown's recent paper I have reconsidered the subject, and I should like to point out why I think Mr. Brown's theory cannot be accepted as the correct one.

Mr. Brown suggests that lymph on the intestine allows toxins to pass into the circulation, but not the micro-organisms themselves, and thus, if this lymph is removed by the surgeon when the abscess is opened, then the organisms themselves may penetrate into the vessels and a general septicaemia may be produced. Now surely it is the absorption of the toxin, not the entrance of the micro-organism into the blood stream, which produces the fatal symptoms. Even in a case of true septicaemia, as distinct from mere absorption of toxin from some suppurating area, the patient does not die from the mechanical effect of the organism in blocking minute vessels, but from toxin produced in its growth. If minute vessels are plugged by masses of micro-organisms—a condition rather of pyaemia than septicaemia—even in important organs, it is not so much the mechanical block in these minute vessels which does the harm as the suppuration in the surrounding tissues set up by the chemical products of the growth of the organism.

But the presence of a layer of lymph on the intestines might certainly prevent, or at least retard, absorption of a toxin, and therefore its removal might lead to a fatal toxaemia. If lymph is adherent so that it does not become detached with the evacuation of the pus on gentle sponging, or floated out on flushing, I feel sure no surgeon will detach it, for it would be obviously unwise to roughly sponge or swab such a lymph-lined cavity. Anything like rubbing off adherent lymph would, I feel sure, be avoided.

Then, again, Mr. Brown's theory will by no means account for all the facts. In my paper I published details of two cases in which no pus was present at all—in both a gangrenous appendix was removed—yet both cases died with the same symptoms as the ones in which suppuration was present. Among the cases of local suppuration in which these toxic symptoms supervened were four in which the symptoms of acute appendicitis had been present for a week or more; that is, the operations were done at the time when Mr. Brown suggests it should be done to avoid these fatal symptoms. In my cases it was done then, not from choice but necessity, as the cases did not come under my care earlier. That four of the cases were of this duration is not stated in my paper, as only abstracts of the cases are given, but I have examined my records since reading Mr. Brown's paper, and I find that this is so.

Moreover, it seems to me a dangerous doctrine, that if we have reason to diagnose appendix suppuration, we should wait until we imagine there has been time for the formation of protective antibodies in the serum. Surely, in the meantime the pus may find its way into the peritoneal cavity, and the patient may die of general peritonitis. It is not always possible to keep such cases under personal observation, and even if we do, the spread of a diffuse peritonitis may be so insidious that it may not be so easy to recognize it. And how are we to tell when the serum is sufficiently protective against the organism, or sufficient antitoxin has been manufactured in the serum to overcome the effects of the toxin? Mr. Brown says generally during the second week the temperature falls, and he seems to regard this as the sign that the serum has become saturated with antibodies. But, again and again, the temperature falls in a few days from the beginning of the attack, and yet we find pus present after it has fallen to normal at this period.

Then Mr. Brown says we should only operate early, if within twenty-four hours of the onset, when we may presume mischief is limited to the appendix, or when general peritoneal infection is impending or has taken place. But surely the assumption that mischief was limited to the appendix would be rash, and who can tell whether general peritoneal infection is impending or not? It is because we have learnt, perhaps by a sad experience that we cannot tell, that so many of us now think the sooner a diseased appendix is removed the better.

I think we are very much indebted to Mr. Brown for calling attention to the interesting problem as to why some patients die with symptoms of profound toxaemia after operation for acute appendicitis. As he truly says, we are always ready to record our successful cases, but perhaps we really learn more from the consideration of our failures.—I am, etc.,

Bristol, Aug. 27th. CHARLES A. MORTON.

SIR,—"When to operate for appendicitis?" "*The Three Lines of Defence.*" In the BRITISH MEDICAL JOURNAL for August 27th, page 508, there was a valuable paper by Mr. H. H. Brown on "Appendicitis." His suggestions on when to operate: the three lines of defence: and the four maxims in regard to the operation, are, from my experience and observations, practical, and if carried out would greatly decrease the mortality. It is so rarely that we see cases soon enough to be able to diagnose appendicitis within twenty-four hours, that, in my opinion, it would be safer not to operate until the abscess is formed and the "second line of defence" is ready. Possibly there may be a few cases diagnosed early enough to operate within twenty-four hours.

Bacup, Aug. 29th. JOHN BROWN, M.D.

MODERN MIRACLES OF HEALING.

SIR,—I have read all the recent writings in the JOURNAL *re* miracles with profit, interest, and instruction, although a Catholic.

The letter of Colonel Joubert de la Ferté plainly does not fulfil *all* the conditions enumerated by Abbot Gasquet.

Imprimis—It does not fulfil the very first one: That the disease cured must have been of an aggravated nature, difficult or impossible to be cured in the ordinary way. The case quoted was even to Colonel Joubert de la Ferté most obviously a case of hysteria.

I should like more definite particulars of the case-history. "The girl, it seemed, had been suffering from 'paralysis' for several years" would not at all satisfy my very ordinary medical mind. Moreover, if other doctors had been unable to make a diagnosis of the real condition of things, it was rather a loss to the financial and physical welfare of the hysterical patient under consideration. Colonel Joubert de la Ferté could have wrought this

"miracle" himself, without playing on the religious belief of the nuns. I venture to hazard the view that he will agree with me on this point.

I think a great many physicians perform "miracles" of this kind during their professional lives.

I remember when practising in Boston, U.S.A., being called in to attend an old lady about 80 years, who for five months lay in one position in bed, and was said never to have turned over in bed for that period without being assisted. She then resented being assisted, and an affectionate son and careful nurse were worrying lest a bedsore should develop. I saw the light that Colonel Joubert de la Ferté saw in his case, and I asked to be let alone with the old lady. I made friends with her, had a social chat, and asked her to turn over in bed, as I wished to examine the hip on which she was lying. This she immediately did. I called the nurse, who came into the room, and she surprisedly asked me how I, unaided, was able to turn the patient over. In the nurse's presence I asked the old lady to turn back again, which she did at once. The nurse nearly fell downstairs in her anxiety to tell the glad news to the son of the invalid. In two days the old lady was up, and at the table for her meals. This "miracle" was the surprise of the neighbourhood, but the limelight was on the doctor, not on Lourdes. The people were Catholics, too. *Verbum sap.* Like Colonel Joubert de la Ferté, I, too, refrain from comments, as my letter is longer than I intended, but comments are really needful on such cases as Colonel de la Ferté quotes, which, to my mind, and I say it with all due respect, are flippantly quoted on a really serious question.—I am, etc.,

JOHN J. HANLEY, M.D. Boston, U.S.A.,
M.R.C.S.Eng., L.R.C.P.Lond.,
Formerly Demonstrator of Anatomy of the College
Hull, Aug. 28th. of Physicians and Surgeons, Boston, U.S.A.

SIR,—In regard to the contributions of the three celebrated ecclesiastics to the discussion on faith and healing in the JOURNAL of August 20th, I have no intention of entering into the argument. I merely wish to express my surprise and regret that they do not endeavour to enlist the assistance of the powers they invoke in other fields than those belonging to our profession. I beg of them for a space to leave things medical alone, and take other subjects under their care. Agriculture, for instance. There are many inhospitable regions on the earth's surface which if rendered suitable for cultivation would confer inestimable blessings on the human race. I could conceive of nothing more noble than the spectacle of a party (not too small) of ecclesiastics—Roman, Anglican, etc.—journeying into Central Thibet, and making a novena to the intent that that arid soil should in future be able to produce tobacco, grapes, and other products that tend to the happiness of mankind.

Or engineering. There are mountains, bogs, and swamps which are much in need of improvement.

In meteorology, lightning and hail seem to serve no useful purpose, and united spiritual action against those phenomena, if effectual, would do more to convert this world to the power of faith than several hundred so-called cures of exceedingly indefinite diseases.

Not all the miracles related in the sacred books had relation with medicine. Why have all the diverse ones ceased? It reminds one of the magic purse described by (I think) Anstey which had seen better days, and which coming into possession of a twentieth-century believer and being commanded with due form and ceremony (I forget whether a novena was included) to supply him with a fortune, presented its possessor with three shillings and eightpence.—I am, etc.,

August 21st. UNCONVINCED.

SIR,—When at Lourdes, a few years ago, I saw a case exactly similar to that related by Colonel Joubert de la Ferté in the JOURNAL of August 27th. A hysterical girl had for years walked with her legs crossed like a pair of scissors. The moment the Sisters of Mercy dipped her into the well of cold water she screamed and immediately straightened her legs. The local evening paper, which is published during a pilgrimage, came out that night with the whole of its placard devoted to the words "*Un grand miracle ce jour*," the "miracle" being the straightening of the girl's limbs by the sudden application of cold water. Unfortunately for the young woman, she had been able to use her legs to some extent when they were crossed, but could not do so when they were straightened.—I am, etc.,

August 27th. INFIDUS.

SIR,—One must seek for a clear definition of the word "miracle" before it is possible to intelligently follow the subject under discussion in the JOURNAL.

The Abbot Gasquet gives a suggestion. "Something which is above or contrary to the ordinary laws of Nature, or something brought about by supernatural agency." We know that many phenomena formerly described as supernatural are now known to be in accordance with known natural laws.

I feel the word "miracle" should mean phenomena that supernatural agency alone could bring about in any given case or any similar ones, not a simple anticipation or hurrying, as it were, of natural processes, and which in later years as knowledge further develops may be fully explained by natural laws; and so to my mind the establishment of a "miracle" as such requires greater and more careful consideration than the canonization of a saint. Saints are many, but miracles few or none.

Having reached so far, it should be fairly easy to examine so-called cases of "miracles."

It must be clearly stated that no nervous case is capable of supplying suitable material for a test.

In the case mentioned by Father Thurston, if the boy's ear had been carefully examined by fully competent persons immediately before the Mass on May 22nd, and the drum found to be totally destroyed, and then, if, on the conclusion of the Mass, the ear had been again examined by the same persons, and the drum and the ear found in perfect condition with no trace whatever of past or present disease, then the case would be worthy of some consideration as a "miracle." Otherwise it is certainly not; the auditory sensations are of little or no value.

Take a case of amputation at the hip-joint—the limb removed and preserved in a museum; later on the sudden formation of a fresh limb, with perfect coaptation and usefulness, as though an amputation had never taken place—that would be a "miracle," and no less striking a manifestation deserves the appellation.

Evidence of sudden and complete restoration in the case of severe organic disease, where the normal tissues of a part are undoubtedly destroyed, and their place occupied by abnormal cellular elements—and where it has been possible unmistakably to demonstrate these conditions—such evidence has never been forthcoming.

Bear in mind to be a "miracle" the cure must be sudden, complete, and permanent.

In the humble opinion of the writer there is no evidence for the belief in present-day "miracles."—I am, etc.,

August 21st. J. W. T.

SIR,—We are, indeed, extremely grateful to you for allowing us the opportunity of reading what some members of the Roman Catholic Church have to say on the subject of miracles.

Dr. Gasquet states that a miracle is something done by supernatural agency—that is, by God—and in the next sentence tells us that all things are made and ruled by God, the conclusion being that all things are miracles—as, indeed, they are.

As we do not know all about the laws of God, we cannot say whether any departure has been made from one of them.

Dr. Gasquet is pleased to say that miracles are historical facts, and with the same amount of reason one can say that all historical facts are miracles.

Consider the "requisitions" laid down by Dr. Gasquet:

1. "Difficult or impossible to be cured in the ordinary way." What is the ordinary way? Is it by giving a person something to swallow? If so, these cures are all of them miraculous, for we know nothing as to how it is done, and the ordinary way is really extraordinary.

2. "That the patient showed no signs of mending." Is there any person living whose opinion is worth considering can positively affirm when "mending" starts?

3. "That no medicine had been used." This certainly would be a miracle!

4. "That the cure was *sudden*." What is meant by the

word "sudden"? The dictionary gives it as "unexpected." It would be more miraculous to get all we expected!

5. "That the cure was complete." Who is a judge of perfection?

The fullness with which the Orleans Railway Company case is treated only serves to emphasize the disagreements that arise over compensation cases, and in this case the railway company were advised not to pay because their medical man did not think the case serious.

The following case as bearing on the point may be of interest:

A collier had been injured in the back, with the result that he had bladder trouble, and had to use two crutches. I examined him carefully, and came to the conclusion that there was some spinal mischief. This opinion was supported by another medical man, and the judge awarded full compensation of £280. One week after this judgement the man was out training horses. I always regret having misled the court, but I was honest in my opinion. —I am, etc.,

Swansea, Aug. 20th. G. ARBOUR STEPHENS.

SPIRITUAL HEALING AND THE "GUILD OF HEALTH."

SIR,—The reply of the Warden of this Guild, in your last issue, evades the whole point of my article. He says that the guild is quite unconcerned with anything he may do, rightly or wrongly, in his private capacity. But my criticism was that by undertaking the "public" position of Warden, he not only gives to the guild the approval of a clergyman of the Church of England, which weighs heavily in increasing its membership, but also he uses this wide-spreading medium to obtain cases on which to practise spiritual healing.

Over 350 lady members cannot be denied some part in helping on the chief of the three professed objects for which they join this guild—"For the restoration to the Church of the Scriptural Practice of Divine Healing." They can talk to their friends, distribute pamphlets on spiritual healing by the late and present wardens, and use as their best argument the leadership of a clergyman. But I never suggested that they would themselves endeavour to help sufferers, or charge a fee for doing so—the obvious course is to canvass their friends to come to their clerical fellow-members—yet this is what Mr. Boyd considers to be working quietly in his capacity as a clergyman. I know a lady who was told simultaneously about both this guild and the Society of Emmanuel; but Mr. Hickson as a layman, despite his open claim to a special gift of healing, stood no chance of the new member because a clergyman headed the Guild of Health. However good the aim of people who join these attractively-named societies, and whatever cases of healing they bring forward as effected through these agencies, yet such independent action, in the name of religion, is to be deplored.

Mr. Boyd says that this guild has "nothing whatever to do with the supply of healing," and then later on adds, "I merely attempt to supply that contribution of spiritual energy in the work of healing sick people which the Church ought to supply."

These are very contradictory statements considering that people come into touch with Mr. Boyd for spiritual healing by means of this guild; indeed, most Church people would fail to obtain from their own clergymen similar treatment, especially after the recommendations of the Committee of the twenty Bishops, appointed at the Lambeth Conference in 1908 to consider this subject (vide pages 133 to 138 of the printed report).

Mr. Boyd also complains that my account of his treatment for six weeks of a lady with myasthenia gravis is misleading, but he does not dispute any of the facts. The gravamen of my charge was that it is dangerous for a person untrained in medicine to undertake treatment of disease, spiritually or otherwise, without simultaneously having medical observation as to the progress of the condition. We repeatedly hear supposed results of all kinds of healing brought forward to justify the methods employed; so also Mr. Boyd, who thinks that the patient "left him a good deal better, both physically and spiritually, than when she came." He will no doubt take similar risks in the future, as he does not admit any responsibility incurred in his independent treatment of a case of myasthenia gravis, with the lady under no medical supervision, and without inquiry of any medical man who had treated her in the past.

If Mr. Boyd does not wish to be called a "spiritual healer," then I would suggest he refrained from leading a guild formed for such a purpose; for it is quite certain that his present methods, as Warden of this guild, are calculated to retard rather than "to set forward that harmony between religion and medicine which is the hope of every sincere Christian heart."—I am, etc.,

London, Aug. 29th. STANLEY BOUSFIELD.

THE NEW MIDWIVES BILL.

SIR,—May I, in the interests of tens of thousands of poor women, ask your readers' attention for the new Midwives Bill, which the House of Lords has just passed, and which the House of Commons has now to consider?

When the police find a man urgently needing medical aid, owing to some accident or another, or even to his own misconduct, they summon a doctor to attend to him. That doctor's fee is paid as a matter of course out of the police rate, and the man is not made liable to repay the amount.

When a woman has made the customary provision for her confinement by engaging a certified midwife, Parliament intervenes to compel that midwife, should any unforeseen dangerous emergency arise, to have a doctor sent for. Parliament made no provision as to that doctor's fee, but it is being paid, as a matter of fact, in Manchester and Liverpool, Cardiff, and St. Helens, by the town council out of the public health rate; and all rural and urban district councils have equal powers to make the payment. Sometimes the board of guardians will make the payment, and then the relieving officer is sent to make inquiries, though the Poor Law authority has no legal power to recover the amount.

Now the bill which the House of Lords passed proposes by Clause 17 to put it upon the board of guardians, instead of the town council, in all cases to pay the doctor's fee out of the poor rate, although the payment has admittedly nothing to do with parochial relief, and is expressly declared to be not parochial relief. At the same time the unfortunate woman and her husband are, for the first time, to be made liable to repay whatever fee the board of guardians, under Local Government Board regulations, chooses to pay the doctor.

Here are two separate and distinct hardships to be inflicted on thousands of thrifty and hardworking women and their families, just in their hour of need. The first hardship is the importation into the matter of the machinery of the Poor Law, instead of that of the public health authority. Probably the noble Lords do not see any difference. But many a worthy woman has a feeling of shame and indignity at having anything to do with the Poor Law and the relieving officer.

If the board of guardians, instead of the town or county council, is (for the first time) required to pay the doctor's fee, and to decide whether or not it will recover the amount from the patient, it will inevitably use the Poor Law machinery for this purpose—the visits of inquiry of the relieving officer, the summons to attend before the board, and so on, just as if the matter were one of parochial relief. Indeed, the official argument used for the clause is that this use of the relieving officer affords the most convenient machinery for making the inquiries.

The Government has been warned by all those concerned, by the representatives of the Midwives Institute, the Central Midwives Board, the Society of Medical Officers of Health, the British Medical Association, the Municipal Corporations Association, such typical county councils as those of Lancashire and Nottinghamshire, and such important town councils as that of Manchester, that to import the board of guardians into the delicate and difficult business of providing medical aid in these cases of emergency will, as a matter of fact, deter midwife and patient from calling in the doctor. Lord Sheffield and other noble lords expressly say that they hope it will have that effect!

The second hardship is the new financial burden which the bill, *for the first time*, places on these unfortunate families. I see no reason why, when the State insists on

the medical man being called in, on public health grounds, any repayment of the fee should be insisted on; and it is a distinct grievance that the liability will be, not to pay the modest fee which the doctor would have charged to the poor patient herself, but the one or two guineas which (quite rightly) the Local Government Board will fix as the sum that the doctor may charge to the Public Authority. But, even if it is thought that the Public Authority ought to be able to recover the amount, this is no reason for taking the duty out of the hands of the Public Health Authority and giving it to the Poor Law Authority. Neither has now the power to recover the fee. Either of them could be given that power if desired.

Can anything be done between now and the re-assembling of Parliament in November to prevent the House of Commons from passing Clause 17 of this Bill? I shall be glad if any one willing to help, or desiring further particulars, will communicate with me.—I am, etc.,

BEATRICE WEBB (Mrs. Sidney Webb).

The National Committee for Prevention of Destitution,
37, Norfolk Street, Strand, W.C., Aug. 20th.

SIR,—A member of the General Medical Council who went there to represent general practitioners has been allowing himself to be interviewed by a representative of the *Daily News*, and has informed him that "the vast majority of the general practitioners in the country were opposed to the Poor Law guardians having anything to do with midwifery cases" (*Daily News*, August 29th).

From whom did Dr. McManus receive a mandate to communicate the mind of practitioners to the daily press? His opinions are there given as coinciding with those of a leading official of the Midwives' Institute, who tells us that when a midwife calls in a doctor "it comes within the range of those cases dealt with by the Public Health Authority, and the fees should be paid by the local borough or district council, and ought to be non-recoverable from the husband or family of the woman." In other words, the public are invited, whether they can pay or not, not to call in a doctor, but a midwife, and they can then have medical attendance free of cost.

I should be surprised if our representative on the General Medical Council expressed the mind of the great majority of medical men, and certainly think that if the British Medical Association does not at once move in this matter it will forfeit the confidence of general practitioners.—I am, etc.,

Greenwich, Aug. 29th. J. H. KEAY.

THE SANATORIUM TREATMENT OF TUBERCULOSIS.

SIR,—May I throw in a few words in the discussion under the above heading?

First, I think that a sanatorium is a very necessary institution for the primary treatment of consumption. The idea of going to a sanatorium is to be cured or improved, and this is always hopeful and in many cases successful.

Next, the sanatorium may be used as a training institution for the future; the inmates learn something of the principles of hygiene, the open-air treatment, the proper diet, and cleanly habits and regulations.

I would like to see something more done in these institutions to fit the patients for the struggle for life and against the disease after their discharge. Let more attention be given to the after-prospects of life. We do not hear of many farm colonies being instituted for men leaving the sanatorium life. I have asked applicants for admission to a sanatorium as to the after-life, and they are quite unprepared with any idea how to exist.

A year ago I spent a few weeks at Davos Platz, and mixed freely with consumptives, and learnt a good deal about their complaints and their treatment. I walked and climbed many miles with men who had been sent to Davos for tuberculosis some years previously. These men were strong and in good health, and were engaged in various pursuits in that town.

Now the climate of Davos is most conducive to the well-being of the consumptive; the high elevation (5,000 ft.), the large amount of sunshine, summer and winter; in the winter the frost is severe at night, but the middle of the day is warm with the bright sunshine. The various out-door sports in the winter keep up the spirits of the invalids, and they tell me they feel very "fit" at this time. Unfortunately the same rule does not hold good for the summer months, when there are no sports and only a little walking exercise is allowed.

Lately I have given much attention to the climate of Western Canada, where we may obtain similar conditions to that of Davos. As Archdeacon Lloyd, of Edmonton, has told us, that *there* they have the climate of Davos Platz, and *you need not pay for it!*

In South Alberta you have an altitude of 3,000 ft. above sea level, you have an abundance of sunshine, a dry atmosphere, and very cold winters—all the conditions conducive to the well-being of the consumptive.

A few months ago two patients of mine, under my advice, went to South Alberta, and on their first reaching Canadian soil they began to improve. Their reports to me are most cheering: they are no longer invalids, they are making their way as ordinary colonists, full of hope for the future.

Before they left England these consumptives learnt something of the Colonial life; they camped out, and could cook their own food, etc, and this is the kind of training which should be added to the curriculum of the sanatorium life. To learn how to make a hut, and how to live in it; and to put before them an idea of hope of better health in the future.

The distance to Western Canada is not great; it can be reached in two weeks, and the cost of the voyage and journey is not very much—all within £20. The susceptibilities of the Canadian Government require a little studying; there are stringent regulations against the admission into that country of persons liable to become burdens to their rates. If proper representations were made to the ruling authorities probably some relaxation may be allowed in the case of consumptives in the early stage of the disease, and with good recommendations.

The Swiss Government has profited by advertising their health resorts for consumption. Why not let Canada do the same, and, with proper safeguards, make their land a land of promise for some of our weak ones?—I am, etc.,

Durham, Aug. 27th. EDWARD JEPSON.

SIR,—In forming an opinion as to the value that ought to be placed on sanatorium treatment, there are four points that have to be taken into consideration: The expectations upon which the sanatoriums were obtained, the results claimed to have been obtained, the deduction from those result of the effects known to have been produced by pre-sanatorium treatment used in sanatoriums, and the theory on which the sanatorum movement was found.

Sanatoriums were brought into existence to cure consumption. It is common knowledge that they have failed to do this, and that fact is admitted by the claim now made that sanatorium treatment greatly prolongs life, and that an organization is necessary for the care of patients after leaving the sanatorium.

Pure air, exercise in the open air, good food and removal from the environment in which the disease was produced, are well-known beneficial factors in the pre-sanatorium treatment of phthisis, and their effects must be deducted from the results of sanatorium treatment. What, then, substantially remains? The provention of "auto-infection"? That in its broad sense was pre-sanatorium and was termed personal and general hygiene. Sleeping in the open air in all kinds of weather? That certainly is a prominent factor in sanatorium treatment, but it has been found to be only applicable to "sanatorium cases." Hippocrates wrote emphatically on the danger of great and sudden changes; and John Fothergill expressly warned us against such changes in the treatment of phthisical patients. Is it likely to be beneficial to the patients after leaving the sanatorium?

Sanatorium treatment is based on the bacillian theory. From the writings of the last ten or fifteen years I am not able to form an opinion as to the exact signification of that theory. Is the *Bacillus tuberculosis*, the mixed infection, or the environment the dominant factor in the production of phthisis? Until that question is decisively settled there can be no solid basis for sanatorium treatment.

Dr. Vere Pearson cites, in the BRITISH MEDICAL JOURNAL of August 20th, his personal experience in favour of sanatorium treatment, and in reply to that I would point to the cases of the late James Henry Bennet, Trudeau, and myself—we were both advised to leave our hospital studies on account of phthisis in 1873—as examples of pre-sanatorium treatment.—I am, etc.,

GODFREY W. HAMBLETON, L.K.Q C.P.I.

London, E.C., Aug. 26th.

SIR,—I have read Dr. Dutton's letter in the JOURNAL of August 13th, p. 407. I am quite able after years of residence in a country where there are tens of thousands of stock of all sorts to endorse his opinion as to the behaviour of animals in regard to wet cold air, day or night.

But I think he must be ignorant of the fact that all stock and domestic animals unless reared under cover and habitually under cover will never enter a building, however palatial, if left to their own devices.

Their favourite site for a camp is on a moderate hill just below the crest facing the warmest point of the compass, and in the worst of weather prefer to stand to leeward of a clump of trees or fence in preference to entering the most comfortable stable or byre.

I am a general practitioner who for years had dozens of cases of more or less *advanced* phthisis on my hands. I was one of the first to take the fresh air cure up in Australia, and say without hesitation that it gives years of useful life and smooths the path to the grave even if it fails to cure the patient.

Dr. Dutton's letter conveys to my mind the impression that sanatoriums are built in situations specially liable to cold damp airs. I suppose he really means that the open windows of a sanatorium admit air whilst the dew of night and morning is falling and the air is saturated; except in valleys, the period during which this occurs is very short and certainly causes little inconvenience to patients adequately clothed.

I have never been able to trace any ill effects to the influence of water-saturated air or heard that it is anything more than a popular prejudice. I have frequently been exposed to it for weeks at a time nightly whilst camping out.

My own opinion of this controversy is this, that until the general practitioners who first see the cases are courageous enough to diagnose phthisis prior to the discovery of tubercle bacilli in the sputum, sanatoriums will be in bad repute amongst them.—I am, etc.,

August 8th. ANGLO-COLONIAL.

THE TREATMENT OF PULMONARY TUBERCULOSIS.

SIR,—I have been extremely interested in a perusal of the many letters appearing in the JOURNAL, and now extending over a lengthened period, on the treatment, etc., of pulmonary tuberculosis. At the very threshold one is inclined to ask the question, What is the cause of the remarkable difference of opinion that seems to exist with regard to the incidence, avenues of infection, and treatment of such an extremely common disease as pulmonary tuberculosis?

Now, as regards the incidence, to quote only a few authorities, Dr. Sims Woodhead believed that over 90 per cent. of those who lived on to 45 had been infected with tuberculosis; in fact, "at one time or another the tuberculous bacillus had found a foothold on almost every one of us."

Dr. Hamburger, of Vienna, says that "nearly all the persons in the city of Vienna at the age of 14 years were already tuberculous." A serious outlook for the Austrian empire! However, such statements as these—and unfortunately they can be easily multiplied—should not be allowed to pass unnoticed, although they certainly convey only one impression—an erroneous one—to observant physicians in actual practice, who have not allowed themselves to become sufficiently modernized as to ignore that extremely valuable factor in the diagnosis, prognosis, and treatment of disease, and which is included in the very comprehensive term, the "constitution."

It is refreshing to quote another authority on the other side. Dr. J. E. Squire, C.B., London, who has perhaps examined more children than any other physician in the United Kingdom, and who bases his opinion entirely from the clinical standpoint, puts the incidence of tuberculosis in childhood at less than 5 per cent. I do not think there is a physician of experience anywhere who will not agree with Dr. Squire.

Now what is the cause of this extraordinary difference of opinion? The cause is due entirely to the methods of investigation, and to the undue importance attached to the results of experimental investigation. It is both arbitrary and unscientific to establish or define a relationship between the conditions existing in man and animals, especially the lower animals, on which experiments were usually made.

It is to be noted that the claims for the universality of tuberculosis is put forward by laboratory experts, accompanied, to be sure, by the comforting assurance that quite frequently the bacilli remain dormant—prefer to stew, as it were, in their own juice to attacking the unsuspecting host.

It would be a very serious thing should any serious doubts arise in the minds of clinical physicians as regards the value of the reports issuing from bacteriological laboratories; but in this particular instance, at all events, one must not be afraid to express disbelief in an agent which, one may safely presume, is responsible for stamping 95 or 99 per cent. of the human race as tuberculous.

Some extraordinary claims to infallibility have been put forward on behalf of tuberculin as a test (not to mention as a curative agent); but when these claims to infallibility are entirely supported on evidence such as the above, one must be pardoned for not merely entertaining serious doubts as to its value, but for assuming that as an aid to diagnosis it is practically worthless.

All the tuberculin tests at present in use are of little or no practical value; and, as Dr. Squire has said, tuberculin was not even a test of susceptibility, and there was no agreement or even consensus of opinion among experts in favour of the reliability of any single test among the many recommended for our approval. Can the same be said with regard to any other well-known and approved chemical test?

Incipient pulmonary tuberculosis can be very readily and satisfactorily diagnosed at a very early stage—months even before the appearance of any bacilli in the sputum—if due attention is paid to the observation made some twenty years ago by Dr. Kingston Fowler, who based his conclusions on the results of a series of autopsies at the Brompton Hospital.

Dr. David B. Lees, in a most illuminating and instructive article in a recent issue of the BRITISH MEDICAL JOURNAL, has called the attention of the profession to Dr. Fowler's conclusions, the absolute truth and reliability of which can be confirmed by any one who is interested in this disease. It was there pointed out that the initial lesion does not begin at the apices, as is generally thought, but at a point fully two inches lower down, from which it extends either backwards towards the suprascapular space, or downwards and outwards into the second intercostal space. The earliest physical signs can usually be detected in the intercostal space from one to three inches from the sternum.

Posteriorly the dull area was found to be quite close to the upper dorsal vertebrae, which under normal conditions is always resonant.

In the lower lobe also at a very early stage a tuberculous focus is found less commonly about 1 or 1½ in. below the summit, from which it spreads downwards and outwards, and which can be verified clinically by careful percussion along the spine of the scapula and immediate neighbourhood.

These areas near the four apices are the most frequent, but there are others, and for a full description the reader is referred to the original reports.

Now, careful physical examination—percussion especially—over these well-defined areas will enable a satisfactory diagnosis to be made long before the appearance of any bacillus in the sputum, and when, therefore, microscopical examination is as worthless as the *x* rays or tuberculin test. The symptoms present at this stage are dullness on percussion, jerky or diminished air entry, and prolonged expiration.

I think it will be generally admitted that early diagnosis in this disease is of vital importance in the interests of the patient; and if rational, scientific, and energetic treatment

is immediately carried out, a cure of a permanent nature can be predicted in a large majority of cases. There appears to be a certain amount of unanimity with reference to the avenues of infection, but the question is different when treatment comes to be discussed.

The plan of treatment which I recommend, and have practised most successfully for over twelve years, is practically the same as that which has been recommended by two such eminent physicians as Drs. Burney Yeo and David B. Lees. The extraordinary series of cures recently published by Dr. Lees will well repay careful perusal.

The essentials of this treatment consist in *continuous* inhalation of a strong antiseptic solution, such as guaiacol, carbolic acid, and spirit of chloroform. The form of inhaler is the simple one originally introduced by Dr. Burney Yeo. Six drops of this solution are dropped on the small sponge in the centre every hour, the patient is rigorously confined to bed for the first fortnight, and the inhalation is only suspended when food is administered. During the night fresh supplies of the solution are only to be added if the patient is awake. After the first fortnight longer intervals are gradually allowed, but the inhalation must be kept up for from six to ten weeks, according to the progress of the case.

Good nourishing food is frequently administered, and after the first few weeks, graduated exercises are carefully enforced. No drugs are given, and cough medicines are found to be unnecessary, as from almost the very beginning that distressing symptom is relieved.

Such are the outlines of the simple and inexpensive treatment I confidently bring under the notice of the profession.—I am, etc.,

Cairo, Aug. 14th. T. GERALD GARRY.

THE GALTON LABORATORY MEMOIR ON THE INFLUENCE OF PARENTAL ALCOHOLISM.

SIR,—I am surprised to find that so many medical men who are active friends of the temperance cause (as I am myself) are annoyed or disappointed by the conclusions of the above memoir.

Surely these conclusions are quite in harmony both with general biology and with clinical experience.

If alcoholic parentage is to produce any effect on offspring (excluding its social or environmental action), it must be by one of two ways.

1. By way of true biological inheritance.
2. By way of toxic effect upon the germ.

With regard to No. 1, we know that a very large proportion of inebriety represents a neurosis of the type of insanity or other "instability." So far as this kind of parental quality is capable of affecting the offspring, it may appear as an alcoholic tendency, or as some allied phase. But in this case what is transmitted is the parental neurosis which led to the parental drinking. Till we have some better evidence than is yet forthcoming as to the possibility of the inheritance of somatic acquisitions, we cannot expect to find transmitted as a biological heritage the effects of alcohol on the parent or his industriously acquired habits of life.

With regard to No. 2, we know that it is by no means easy to modify for good or evil the fetus in utero. Those who attend confinements in the slums, or who are associated with the babies of the lying-in charities, cannot fail to be impressed with the small difference made by parental habits of life or dietary to the condition of the babies at birth.

In this respect the paper read by Professor Laitinen at the Alcohol Congress last year is of interest, and invites further investigation. Alcohol is, we know, rapidly eliminated, and the human frame has great powers of recovery from its action. If Professor Laitinen's conclusions are confirmed, they would indicate an interesting toxicity of alcohol exercised on the embryo. But—and this is important—if alcoholic parental neurosis or its allies are inherited, it is likely enough that, like other similar manifestations, they would show no sign at the school age. On the other hand, if we look for toxic effects, it is likely enough that such effects, if they ever had been present, would have exhausted themselves in any child who was old enough to come within the range of these researches.

In either case such results as those of the Galton Laboratory memoir are what might have been expected, and it would seem unlikely that the inclusion of data from abstaining parents would have materially modified them.—I am, etc.,

Brighton, Aug. 14th. R. J. RYLE, M.D.

BUFFON'S ENGRAVING OF A PIEBALD NEGRESS.

SIR,—Buffon's engraving of a piebald negress, which was recently reproduced by Sir Jonathan Hutchinson in the BRITISH MEDICAL JOURNAL, June 18th, 1910, p. 1480, is the classical example of its kind, and is cited by all who have written on irregular pigmentation of the skin. In the collection of pictures in the museum of the Royal College of Surgeons there is a portrait in oils of the piebald negress figured by Buffon. My attention was drawn to this picture (which measures 30 in. by 24 in., and depicts the child about life-size) by Professor Karl Pearson and Mr. Nettleship during their inquiries into albinism. The only history attached to the picture is the inscription—presumably painted by the artist—towards the lower right corner of the picture:

The true picture of Mary Sabina, who was born October 12th, 1736, at Matuna, a plantation belonging to ye Jesuits in ye City of Cartagena, in America, of two Negroe slaves named Martiniano and Patrona.

The inscription is painted on an oval grey ground, and surrounded by an ornate conventional design. Seeing that Hunter was interested in the question of albinism, and had made a collection of pictures illustrating the condition, it was at first presumed that this picture had belonged to his collection, but a search through the various documents relating to his pictures gave no sign of such a picture having been in his possession at any time. The clue to the picture was found in Sir Erasmus Wilson's Lectures, delivered at the Royal College of Surgeons, 1876–78. In the first lecture, on Piebald Races of Men, p. 8, a description of the picture is given, and the following footnote added:

From the context and from some differences between the painting and Buffon's engraving I am inclined to believe that the true reading of these words "*l'original du portrait*" should be *the original portrait*, not the original of the portrait, which must refer to the child itself, of which there is no further mention. The history of the picture, which is now in my possession, must be curious, but I have been unable to unravel it further. It was offered for sale to the College, but failing a purchaser was brought to me.

The manner in which this picture came into the collection of the College of Surgeons becomes tolerably clear: most likely when the lectures were finished the picture was temporarily left in the museum; at least it is not mentioned amongst the specimens given to the museum by Sir Erasmus Wilson in 1884. It was purchased by him some time prior to 1870.

For a full history of the picture from which Buffon's engraving was made one must turn to the supplement of vol. iv of *l'Histoire Naturelle*, published by M. le Comte de Buffon, in 1777. About this time Hunter also was inquiring into the cause and nature of pigmentation. In September, 1772, M. Taverne, the Burgomaster of Dunkirk, sent Buffon the original portrait with the history that it was found in 1746 on board an English prize, *The Christian of London*, bound from New England to London, which was captured by le Comte de Maurepas (in another letter M. Taverne says by *la Royale*), and brought into Dunkirk. The picture had thus been in the possession of the burgomaster for 26 years. We do not know whether it was retained by Buffon or returned by him to Dunkirk. The engraving of it, by De Sève, was made in 1777. Presumably the picture was then in Buffon's possession.

Buffon states that the inscription on the picture is in English, and gives the following translation:

Marie Sabina, née le 12 Octobre 1736 à Matuna, plantation appartenante aux Jésuites de Carthagène en Amerique, de deux esclaves, nommés Marteniano et Padrona.

It is word for word with the inscription on the picture in the museum of the Royal College of Surgeons, except that the first two words, "The true," are absent.

The burgomaster and the great naturalist exchanged an interesting series of letters about the picture. M. Taverne regarded piebald negroes as the result of a union between a black and a European. The English inscription that this child was born to two negro slaves was clearly, in his

opinion, an English lie, "sauver l'honneur de la mère." He points out that the hair on the white part of the scalp is European in character, while the black is woolly. Buffon, on the other hand, thought the white hair was also woolly, but that the painter had not expressed the texture clearly. In the college picture the texture of the white hair is also obscure. The burgomaster observed that on the larger pigmented areas smaller spots of a deeper colour were shown by the artist; this is also so in the college picture. Buffon regarded piebald negroes as the progeny of an albino negro with one of normal pigmentation, but failed to convince the burgomaster, who preferred his own explanation.

On comparing Buffon's engraving with the college portrait certain discrepancies become apparent. In Buffon's engraving the child is reversed—as in a mirror—a natural result when a portrait is engraved directly on to copper. The expression and countenance of the child, the distribution of the pigment, and the contour of the body are exactly alike, with a few minor alterations in the shape of some of the smaller flecks of pigment. There can be no doubt the child shown in Buffon's engraving and in the college picture represent the same individual at the same period of life. But in the college picture the child stands in a tobacco plantation in the foreground, with a wooded vale in the middle ground, on which is shown a little hut with the word "Matuna" painted beneath it. In the background are mountains with a glimpse of a harbour on which ships are seen to ride at anchor. The little girl (she appears to be 2 or 3 years of age) has a sash tied modestly round her waist; Buffon's engraving is shown nude; she holds her right elbow bent with her hand in front of her breast; in Buffon's engraving the corresponding arm is extended to show the pigmentation along the flexor aspect.

In both pictures a parrot rests on the forefinger; in the college portrait it is on the left hand and has two legs; in Buffon's engraving it is on the right hand and has only one leg. In Buffon's engraving she is placed not in a plantation but in an interior with a large umbrella to her right, the feathered cap of a Red Indian on her left and tomahawks thrown carelessly on the floor in front of her. All De Sève's engravings have a setting of still life, and it is possible that he preferred such surroundings for his engraving to the Matuna landscape.

Professor Karl Pearson informs me that there are probably two portraits of Mary Sabina—the one in the college and another in a collection in the United States. Buffon states that the inscription is below (*au bas*) the portrait. In the college picture the inscription is at the lower right corner. It is possible that the portrait now in America may be the original of Buffon's engraving. Amongst your many readers throughout the world there are probably some who can throw further light on this matter; perhaps there are more than two portraits of this piebald child.

Near the picture of Mary Sabina in the College of Surgeons hangs an interesting family group which Zoffany painted for Hunter in 1788. The father is an Englishman, aged about 40, the mother an albino negress probably about 30, the two children (a boy aged 8 or 9, and a girl aged 4 or 5) show the even pigmentation of mulattos. The engraving which precedes that of Mary Sabina in the supplement to vol. iv of Buffon's *Histoire Naturelle* is that of an albino negress; in 1777 she was aged 18; Buffon examined her minutely when she was in France. She is figured in relationship to Marie Sabina, because, as we have just seen, Buffon held the opinion that piebald progeny was produced by negro albinos uniting with negroes. The albino negro figured by Buffon in 1777 corresponds very closely in detail of feature and of form to the albino negress drawn by Zoffany for Hunter ten years later. Buffon's writings were well known to Hunter, who was also making observations on the hereditary nature of pigmentation, and it is extremely probable that in Zoffany's picture we have a continuation of the life-history of Buffon's albino negress. Here, again, I beg to appeal for assistance; the clue may lie in a casual reference which would escape a systematic search. As is well known, Hunter intended to leave full histories of his pictures, but death stepped in before he had completed his task.—I am, etc,

Royal College of Surgeons of England, London, W.C. A. KEITH.

SIR,—The rarity of human piebalds renders the recording of every instance almost a matter of professional duty. I desire to add the subjoined case to those figured by Sir Jonathan Hutchinson in his paper on acroteric piebalds in the BRITISH MEDICAL JOURNAL of June 18th. At the annual meeting in London I exhibited a series of photographs illustrating facial blazes, colour patterns, etc., as seen in animals.

George Alexander Gratton was born of negro parents, on the island of St. Vincent, in 1808. At the age of 15 months he was brought to Bristol and exhibited as a "spotted boy" at the then famous Bartholomew Fair, held at Smithfield. A figure of this child, when considerably older, will be found in the second volume of Chambers's *Book of Days*. He is represented as seated, and grasping a stringless bow. As far as can be judged from the engraving the black mottlings, though less extensive than in Buffon's example, show the same general symmetry. The pigmented areas on the outside of the arms forcibly recall Buffon's figure; three of the four extremities bear imperfect "gloves" or "shoes," the fourth (a foot) being almost concealed behind its fellow. The white blaze, however, covers almost the entire face, the black pigment being almost limited to the parotid and temporal regions. The child died at the age of 4¾ years, and was buried at Great Marlow, in Buckinghamshire. A monument was erected recording the attachment of Richardson, the showman, who had taken great interest in him. It is unfortunate that no photographic record exists of this singular piebald. *Extinctus amabitur idem.*—I am, etc.,

Manchester. GRAHAM RENSHAW.

DERMATITIS ARTEFACTA.

SIR,—I have read with interest some recent contributions on this subject in the JOURNAL. May I point out what is, to my mind, an essential feature in the management of these cases—that, wherever possible, there should be no family exposure? The secret is one which should be kept between medical man and patient alone. In this way some self-respect, which is a valuable asset towards mental healing, is retained by the patient, and the doctor has a better hold of the case in every way. In a paper which I recently read before the Manchester Medical Society I gave several instances in which this plan had been successfully followed, and I believe the patient should always be given this chance. One of the many curious features of this morbid state of mind is the relief and joy with which, in some cases, the victim is rid of his, or her, obsession.—I am, etc.,

Manchester. G. H. LANCASHIRE.

MONGOLIAN IMBECILES.

SIR,—In the article on Mongolian imbeciles of the BRITISH MEDICAL JOURNAL of July 23rd, the chief characteristic of the condition from which it derives its name is hardly mentioned, that is, the slit-like eyes and the epicanthal fold.

Recently I had the somewhat rare experience of having two of these cases at the same time in my practice; both these children were born within a fortnight of each other, and both died of bronchopneumonia (tuberculous?) within three days of each other at the age of about fifteen months. One of these children I suspected to be a Mongolian at the time of birth owing to the small slit-like eyes.

Another feature is that when sitting crosslegged they bow their bodies down in front of them till their foreheads almost or quite touch the ground, in a rhythmical manner for hours at a time as if they were worshipping some heathen god.

Very few of the Mongols which I have seen have survived beyond the fifth year, and it is interesting to know that well-marked types of the condition may survive till puberty.—I am, etc.,

York, July 25th. GEORGE W. MICKLETHWAIT, M.D.

CORONERS' LAW AND DEATH CERTIFICATION BILL.

SIR,—Shall we ever learn wisdom by experience? Dr. Walter Asten (BRITISH MEDICAL JOURNAL, August 20th, page 494) seems to advocate diplomacy, having apparently already forgotten all about the Notification of Births Act,

and that the result of our diplomacy was that the strong politician hoodwinked and then rode roughshod over the weak (though "honourable") profession. And so it will be again if we are weak and foolish enough to rely on diplomacy, which is a very second-rate weapon with which to resist encroachment or fight for right and justice. The resort to it implies that we are uncertain as to our rights, or willing to accept something less. We are not at all uncertain as to our rights, and why should we accept less? Dr. Asten winces if M.P.'s and other interested parties hint that we are "out for fees"; so do I and a good many others, but we must harden our skins and brace up our moral courage. These diplomatists will use the "out for fees" taunt just so long as we wince at it and they can make something out of it for themselves. As soon as we make it clear that we are out for right and justice, and intend to have them, they will drop it and save their breath for the haggle over the amount of the fee, and, no doubt, they will "best" us over that.

It is not right that we only of all free citizens should be compelled to work for nothing, and if we acquiesce, or even philander with diplomacy on the matter, we injure the cause of right and the whole community, and certainly deserve no more than we shall get. Can any one seriously contend that injustice to one section of the community is good for the community at large? I think not. We are told that if we insist on justice to ourselves we may wreck "an otherwise excellent bill." Let us, then, wreck it in the true interests of the community as well as in our own. It will not be our fault if the community have to suffer a little longer for want of the reform, but the fault of those who endeavoured to secure the reform at the cost of injustice and at our expense. Two or three years ago we allowed an unjust measure to become law, though we had the power to prevent it, simply because Mrs. Jones said we were "out for fees," and we could not stand it! We indulged in diplomacy, instead of insisting on common justice and our professional rights. Naturally enough another encroachment is at once attempted, and the same cry, "out for fees," is raised in good time, and again we are told from within the profession that it is a case for diplomatic treatment. There is no need for diplomacy; let us insist firmly on right and justice in the abstract and our own rights in the concrete, and by all means let interested Mrs. Jones and ignorant Mrs. Smith proclaim that we are "out for fees." A truly honourable profession may ignore them both without loss of honour. As for the gratitude of the nation for our sacrifice in its interest, this bill proves how grateful it is for our complacency over the Notification Bill, and we have really nothing to complain of. It is, no doubt, willing to feed us up with such bills to our heart's content.—I am, etc.,

Swinton, Aug. 20th. J. Price Williams.

Sir,—Since reading your excellent article on this bill, I have been anxiously waiting for some abler pen than mine to take up the matter. I was very pleased to read the letter in this week's Journal signed "Unitas."

If members of Parliament are labouring under the delusion that because the bill is introduced by a member of the medical profession that it voices the opinion of the majority of its members, it is high time we gave them to understand that a large proportion of its members regard this clause with great indignation, and are determined to do all in their power to prevent such an injustice being perpetrated.

In many cases the Act will necessitate a journey of several miles and a loss of time of anything up to two hours, and there is to be no recompense for this. If we were to receive the modest fee of half a crown, which you suggest in such cases, it would not cover the cost of horse hire or petrol.

Would any sane Government dream of imposing such a burden on the legal profession without remuneration?

We are already forbidden by law to charge the patient for the certificate.

The medical profession already does enough vicarious philanthropy without having more of it thrust upon it by the State.

The proposal of "Unitas" is in my opinion a good one, and I think if the law is passed we had better do as he suggests. Since, however, it would be easier to prevent the law being passed than get it altered afterwards, I would suggest that the Association should draft a memorial to the Government pointing out the injustice of this clause. I would also suggest that the signatories to the memorial should pledge themselves that in the event of this clause being passed unaltered that they will refuse to carry out its provisions. I think a large majority of the general practitioners throughout the country would sign it. I believe every one in this district would.

Since the successful working of the Act is entirely in the hands of the medical profession, I cannot think that any Government would pass this clause in the face of a protest signed by a large majority of its members. We must let them clearly see, however, that we are determined not to have this injustice thrust upon us.—I am, etc.,

Spennymoor, Aug. 15th. W. Mussellwhite.

Sir,—Although with our usual altruism we consider first the beneficial effects of this bill on the nation, and even hesitate to oppose it on account of its supposed usefulness, it is not the substance, but the principle, that we must oppose.

The argument that the payment of a small fee for work done would wreck the bill is too feeble to stand for a moment.

Has our country become so mean, that—in addition to all the gratuitous work we heap upon the people, and all the unpaid work the nation has thrust on us in return—we should be now asked to do all this work out of charity?

Can it be for one moment maintained that the British nation is no longer able to afford to pay for useful work done for it?

I have already given three instances of oppression by this Government on our profession; surely the time is now ripe to remind them that there is a limit to the burden, or where will legislation to benefit the community at the general practitioners' expense cease?

We see in front of us next session bills vitally affecting our profession; the general practitioner is unrepresented, and the past legislation shows that his interests are totally misunderstood or neglected by the medical members of the House.

Would not the last Vaccination Amendment Bill have been equally well received if our medical representatives had insisted on the conditions recommended by the Royal Commission being observed?

Would not the Births Notification Act have been readily accepted if our representatives had insisted that a fee of 1s. should be paid for each case?

It is worth no one's while to stand for justice to the general practitioner, because he is too feeble and disunited to protest effectually.

Our legislators show no diffidence in increasing their own salaries, and no fear of opposition prevents that from being brought forward.

Now is the time to make our stand and say, You shall pay us for the work we do for you. And, unless we do it now, we shall find ourselves, like all weak animals, individuals, and nations, crushed to the wall.

Let any general practitioner compare his social or monetary position with that of his predecessor of forty years ago, and he will see that the crushing process has not only begun but is far advanced.

Let him look at Germany where the social and monetary position of the general practitioner is almost on a level with that of the small tradesman; or at America, where already it is actually below that of the tradesman, and a practitioner will visit for less than the cab hire from his house to the patients, while his average income is below £200 per annum.

All around are evidences of the crushing out of the impotent and diffident general practitioner.

And the remedy. Now, quite as much as in pre-historic times, it is only strength that commands respect; usefulness and good qualities are admired, but not respected without it.

And our strength is unity. The difficulty of unity amongst us in most things is insuperable, but here is an opportunity for unity without difficulties. In itself a little thing, not adding £5 a year to the income of any one of us, but in principle a great thing, and having the most vital effect

upon our future, only let us embrace it and note the difference it will make in next session's medical legislation.—I am, etc.,

August 22nd. UNITAS.

SIR,—The attitude taken by "Unitas," even though it be a little emphatic in its expression, is a far better one than that of Dr. Asten. It is an iniquitous thing that we should be bound under the present system to certify death for nothing, even though, as we must admit, the information given is of little value. Candour compels me to add that, although circumstances force me to work for the State without fee, it is done grudgingly and with no effort but to avoid the penalty of default. That is to say, I make the work itself as nearly commensurate as possible with the value set upon it by the State. To add to this burden, however, and to ask a medical man to perform efficient and useful service without monetary acknowledgement, is monstrous—even though it be "diplomacy."

It seems to me that the timid policy of Dr. Asten is altogether a mistake. If "it is for us to decide whether we risk the rejection of an otherwise excellent bill . . . by insisting on what might prove a wrecking clause," I think we should make up our minds to take the risk. As a matter of fact, the "evil impression of our legislators" is really the simple and quite justifiable business expedient of trying to get the best terms by a certain amount of bluffing. These same legislators are for the most part business men. A plain but courteous refusal—a little more *fortiter* than *suaviter*—to do work except for some reasonable remuneration would be met by an equally reasonable acquiescence. We are too fond of giving way rather than making any fuss, or "risking the rejection" of anything.

Following precedent, an all-round fee of 2s. 6d. would preserve the principle of payment for work done, and would not unduly burden the State.—I am, etc,

Audley, Aug. 8th. JAMES F. BLACKETT.

MALIGNANT DISEASE.

SIR,—I have read with very great interest the Address in Surgery delivered at the Annual Meeting by Mr. Gilbert Barling.

The study of this address, and especially that portion of it which relates to the spontaneous disappearance of cancerous growths, calls to my mind a very marked example of this retrogression which occurred in my practice about three years ago.

The patient was a married woman, aged 41 years. Five years before I saw her first she had been operated upon for carcinoma of the breast, and had been entirely free from any known recurrence up to that time. On my first examination, which was made as the result of her complaint of loss of strength and of breathlessness, I found some dullness behind the upper portion of the sternum and a chain of slightly enlarged glands behind the edge of the right sterno-mastoid muscle. The axilla was entirely free from any sign of abnormality except for the remains of the operation scar. My diagnosis was, of course, one of recurrence of carcinoma in the mediastinal glands and in the glands of the posterior triangle, and I regarded the case as quite hopeless (as, in fact, it proved eventually). During the next few months the patient progressively declined in strength, and the shortness of breath became rather more marked. During this time a large number of manifestly cancerous nodules appeared in the skin. Of these there were six or eight to be felt in the scalp, and three on one arm and four on the other, besides several others on the legs and body. Some of these lumps attained the size of a shilling, and all appeared actively to be growing.

One day on visiting her I found her condition very greatly changed for the worse. Her breathing was so laboured that she could not lie down, and on examination I found that the right pleura was almost filled with an effusion.

I regarded her end as so near that I did not trouble her with any paracentesis, but contented myself with giving her relief by morphine.

As days went on, I found to my surprise that the effusion was diminishing, and in about three weeks the physical signs had practically disappeared. This led me again to make a careful examination of the whole body, when I found to my still greater surprise that the skin nodules were also undergoing retrogression. As time went on *the whole of these nodules disappeared*, and left practically normal skin behind. Her strength also improved perceptibly during this time, and I had considerable hopes of at any rate a respite from the disease for some time. Unfortunately about three months after the events I have related she rapidly lost strength and died of exhaustion.

This case seems to point to the acquirement from the absorption of the pleural absorption of some antibody which was capable of causing retrogression of manifestly cancerous growths in the skin, though it was not sufficient entirely to eradicate the disease from the system.—I am, etc.,

Nantwich. R. T. TURNER, M.D., Ch.B., D.P.H.

MEDICAL BOOKKEEPING.

SIR,—The numerous systems of medical bookkeeping recommended in the pages of the BRITISH MEDICAL JOURNAL from time to time are always of interest, though their very number, like the "remedies" for whooping-cough, seem to indicate that medical bookkeeping is a disease for which no remedy has yet been discovered. As I have studied all the systems recommended, and followed three, separately, over varying periods, it may be of service to describe that which I have adopted and found to answer all the requirements of myself and my patients. The daily work required is not great, and the old bugbear of bookkeeping—getting out the quarterly accounts—now takes two days where formerly it took two weeks (with interruptions). At the same time I have before me at any moment all the attendances and prescriptions with dates which the patient has received, the amount at which these were assessed, the number of times the account was sent out, when paid or balance due; a side column takes any necessary details of the case, such as urinalysis, pulse, etc.

I do not suppose that any one system will suit every practice or every practitioner, but I find it answer admirably for my own practice—a fair-sized middle-class suburban one. Of course the ordinary B. W. and Co.'s visiting list and a cash-book are kept, but no other except my day-prescription-ledger-book—a modification of that described in 1901 by Dr. Birt of Stourbridge.

To begin with, this book is lettered down the side by means of little projecting strips of tracing cloth gummed on in series, bearing on *both* sides the letters A, B, etc., indicating the page where such name-initial may immediately be found. Each page takes three or four names, and the letters are distributed according to their frequency amongst the pages thus: A opposite page 1, B 18, C 62, D 100, E 118, F 132, G 144, H 168, I J 216, K 236, L 248, M 266, N 292, O 304, P 316, R 358, S 380, T 420, V 444, W 454, Y 498.

I employ the signs given in B. W.'s visiting list, with the addition of a few of my own, thus: *V*=ordinary visit; *Vis*=a special message received after 10 a.m.; *Visit*=after 6 p.m.; (*V*)=night visit; *C*=ordinary consultation; *Consultn*=a long or night consultation; (*C*)=consultation with a specialist; *Cf*=ordinary certificate; *Certif*=a long form to fill for insurance, etc.; *Op*=slight operation; *Op*=serious or long operation. Visit at the same time for second members of household are $\frac{V}{2}$ or $\frac{VM}{2}$ and for maid- or men-servants $\frac{VM}{M}$ $\frac{CM}{M}$, the M in the upper line meaning medicine.

Furthermore, I believe most men in the course of years come to employ stock prescriptions and stock sizes of bottles. I use no colouring, and I flavour, if at all, with Aq. chloroformi-saturated solution. Medicines, therefore, in the greater number of cases can quite understandably be written 'Alb,' 'Fe,' 'Q,' 'Sal,' 'KI,' 'Feb,' 'Sod,' 'Q St,' 'Q Fe,' 'Q As,' 'Q Br,' 'Q N V,' 'Am c̄ R,' 'Am c̄ N,' etc., giving ample variety in two or three letters which follow in brackets after M (medicine), L (lotion), Lin. (liniment), prescribed. At any given moment or at the end of the quarter I have then only to run my eye along the lines, tot up amount due (according to position of patient) and enter total in *red* figures—£5 5s. This is sent out on the quarter-day immediately following the last attendance

When paid (or "squared up") a square in black ink is drawn round the amount and the whole account is lightly crossed and squared off. If unpaid, the account is sent on the following quarter-day and one stroke is drawn under the amount; next quarter-day a second stroke; and next quarter-day a third stroke with N=note is sent. After that an angry red dagger is stabbed through the whole attendance from right to left and the account is sent to a collector. The great point about the whole is *system* in giving medicine and in keeping one's books. I give stock medicines and regular stock doses, increasing the dose as needed, just as in giving chloroform. Patients rarely require details, nor does the doctor, and the simpler and shorter his method of prescribing and bookkeeping, the more readily will he send out his accounts and the more quickly get them paid. As an instance of how I enter my details, I will take the attendance given in the BRITISH MEDICAL JOURNAL last week by Dr. Goldie. I should have Mr. Blank's thus:

H. Blank, Marsh Road, Linton.

May 5.02. Mrs. V M (Q Br); V 7 V 9 V Lin (Bell); Miss $\frac{VM}{2}$ (Sal) 10 V: $\frac{V}{2}$ 11 V: $\frac{V}{2}$ 12 V: $\frac{VM}{2}$ (Q St): *13* M (Soda): (C) *14* Miss V M (Fe) 17 V. 21 M (Fe) 27 V: $\frac{V}{2}$

£3 8 3 7/02.

August 19th. SYSTEMATICUS.

ARTIFICIAL RESPIRATION IN NEWBORN INFANTS.

SIR,—I have read Dr. Fothergill's memorandum in the JOURNAL of July 23rd on this subject with much interest. Allow me now to describe my method, one which I have used for many years and found quite satisfactory.

I take an old-fashioned wooden stethoscope, unscrew the ear-piece, put the chest-piece into the child's mouth, press its lips firmly round it with a handherchief, at the same time occluding the nostrils; then I blow with my mouth down the tube at frequent intervals. It is not always necessary to compress the thorax between breaths. One can blow a child out like a football with no difficulty if one wants to. The air comes from the mouth and, perhaps, upper air passages, not from the lungs, and does not contain an excess of carbonic acid.—I am, etc.,

Goudhurst, Kent, July 24th. G. H. MAPLETON, M.B.

AUSCULTATORY PERCUSSION.

SIR,—It is very evident that the matters discussed by Drs. Jordan and Hertz and others are of the very greatest practical interest, and need every consideration.

In a former letter to this JOURNAL for June 18th, I wrote: "Theoretically, in no case of any internal organ capable of being defined by percussion and by x rays can the two outlines correspond, unless the external surface of the body were spherical, and the focus tube" (or rather the radiographic centre of emission) "could be placed at the centre of the sphere."

In the case of an internal organ capable of being defined by orthodiagraphy and by percussion, the two tracings could only correspond when the surface of the body where percussed were flat and the recording plane of the orthodiagraphic tracing were parallel thereto.

I do not think there would be less "distortion" (which I would prefer to call "exaggerated perspective") on a fluorescent screen than on a skiagraph, other things being the same.

The things I have mentioned all depend on well-known principles of mathematical projection. The particular organ under discussion being movable constitutes a particularly puzzling case.—I am, etc.,

Bristol, July 23rd. W. COTTON, M.D.

SANDFLIES AND FEVER IN MALTA.

SIR,—Since the discovery by Lieutenant-Colonel Birt, R.A.M.C., that the sandfly (*Phlebotomus papatasii*) conveys simple continued fever in Malta and elsewhere, several authorities have devoted considerable time in searching for the breeding place of this disease-carrying fly. Hitherto, however, the larval stage has been found rarely in a state of nature. After long and continued searching I have succeeded in finding larvae in a small cave at Notabile, Malta, under similar conditions as to light and moisture as those which were discovered by Grassi in Italy, and more recently by Captain Marett, R.A.M.C., and Corporal Kerr in Malta. I have also discovered that two well-marked species of sandflies are common to this island, though all previous writers have referred to the existence of *Phlebotomus papatasii* only. Whether both kinds are responsible for the transmission of simple continued fever it is impossible to say, as Colonel Birt and all subsequent investigators have overlooked this important fact. It is hoped, therefore, that subsequent investigations will throw some light upon the question, and that it will be possible to furnish further information regarding the bionomics of these insects.—I am, etc.,

Malta, July 31st. R. NEWSTEAD.

HOW TO USE THE "JOURNAL."

SIR,—As one of the older members of the Association, which I joined in 1864 or 1865, I venture to offer my experience in making use of the JOURNAL.

Medical literature of all kinds is superseded so much more quickly as time goes on that few serials will repay the expense of binding. Presumably the JOURNAL has a larger circulation than any other medical paper of its size, but probably not many men would care to have ninety stout volumes on their shelves, as I might have had, so my JOURNAL has not been bound for several years. At the end of each half-year all the advertisements are removed. This is easily done by opening each number in the middle, and turning back the points of the wire clips with a blunt knife. With the index on the top, the twenty-six numbers tied together make a bundle which can be referred to almost as easily as a book. But there is another thing which makes reference easy. For many years, after reading the JOURNAL, two or three specially important articles or valuable statements have been entered in an index every week. The *Medical Digest* has very wide margins, and is well adapted for this simple mode of making one's own book of reference, but any quarto manuscript book with an alphabetical arrangement will answer the same purpose.—I am, etc.,

Castle Cary, Somerset, Aug. 26th. CAREY COOMBS.

SHIP SURGEONS.

SIR,—In view of the proposed formation of a marine branch of the British Medical Association for the purpose of improving the status and pay of ship surgeons, I would urge the hearty co-operation of all ship surgeons in this movement. We have the power to do so in our own hands if we combine firmly to refuse to sign on any vessel that does not recognize our right to charge reasonable fees to all passengers other than those carried under the emigration laws. All interested in this movement should communicate with Dr. John Fletcher, Rostrevor, co. Down, Ireland, before October 3rd, when the matter will come up before the Medico-Political Committee of the British Medical Association.—I am, etc.,

August 26th. ARTHUR W. COMBER, C.P.R. S.S. Co.

FEES FOR MEDICAL EXAMINATION FOR INSURANCE.

SIR,—I do not think I ever received a more extraordinary and impertinent request than that which I have just received from the British Widows' Assurance Company. They ask me to examine a person who lives between two and three miles from my residence, and I am expected to go this distance and make a report on the enclosed form for 2s. 6d. On this form I am asked to answer eleven questions, and the answering of these questions must include (if the report is to be of any use at all) a physical examination of the person.

This is not the first time I have been asked to examine for these ridiculous fees. In one instance I was asked to go six miles—that is, a twelve miles journey—and write a report for 5s.; in another case to see a man living about two hundred yards away for 2s. 6d., including a report, the man having refused to come to my house because he thought I ought to go to his.

I suppose there must be men who are compelled by necessity to undertake work at these rates, but I am glad to think that I have not yet been obliged to descend so low.—I am, etc.,

August 26th. X.

SYCOSIS: SO-CALLED "BARBER'S RASH."

SIR,—I performed a large number of experiments a short time ago with different shaving mugs. Boiling water was poured into the mugs. At the end of one minute (that is, when the shaving-brush would be dipped into the water) the average temperature was 83.38° C., while at the end of another minute (that is, when the razor would be dipped into the water) the average temperature was 77.6° C. The barber must therefore cool the brush and razor ere he can apply it to the skin of the face with safety.

I also performed a series of experiments with a culture of *Staphylococcus pyogenes aureus*. Sterile water was boiled and allowed to cool to (1) 80° C., (2) 74° C., (3) 65° C. respectively. It was contaminated with the culture at these temperatures, and after one minute had elapsed "cultures" from each tube were made on agar. None of the cultures developed. Control experiments were also carried out.

It is clear, therefore, that the bacteriological side of this disease requires elucidation at the hands of some competent bacteriologist ere medical practitioners have any right to take up the dogmatic attitude which they usually do in cases of sycosis. Good-class hairdressers, who are striving after the ideal and who look to the medical profession for guidance in these matters, resent very strongly the imputation which is conveyed in the antiquated term "barber's rash." In fairness to the hairdressing trade, patients should be told that they are far more likely to get sycosis from the many sources outside the hairdressing saloon than they are to get it inside.—I am, etc.,

JOHN WISHART, M.D., D.Sc.

Newcastle-on-Tyne, Aug. 23rd.

SERUM TREATMENT IN CANCER.

SIR,—Professor Barling has done good service to the profession by the exceptionally clear and able statement made by him in his Address in Surgery on the subject of malignant disease. As you say, his outlook is "hopeful," but, on the other hand, his words are duly guarded, and rightly so, seeing there are many pitfalls almost at every step in connexion with the treatment of this disease.

His reference to serum treatment of cancer was brief, and there is one aspect of this part of his subject on which I should like, with your permission, and in no controversial spirit, to make some remarks.

True it is that on the general question of serum treatment the verdict must be "not proven." An undoubted cancer serum has not yet arrived. There is one form of "serum" treatment, however, which to me seems worthy of consideration and, above all, of trial. I refer to the use of the patient's own cancerous exudate "serum." I suggested its application in possible cases three years ago (BRITISH MEDICAL JOURNAL, July 20th, 1907), and I have recommended it often to medical men who asked my opinion in reference to such cases. The *rationale* of it can be stated in few words. In every case of cancer there are, in all likelihood, some immune forces at work, and, though they have arisen essentially as a means of defence against the alien cancer cell, for some reasons unknown to us they do not become effective for defence—they seem to be unable to get within striking distance of the disease. Such forces may exist in large quantity, and, nevertheless, be so placed as to be unavailable. This is markedly true of the large effusions which arise in the thorax and abdomen directly as the result of metastatic cancer. These exudates may remain all through a case, but sometimes, though this is comparatively rare, Nature comes in, and by the magic of her living machinery the fluid is taken from the cavity into the tissues, and a cure, in greater or less degree, follows. As to the mode of attack of the fluid, there is room for diversity of opinion. It may act directly by dissolving the cancer cellular tissues, which then fall to be absorbed; or, as some weighty authorities (Ehrlich, Wells, Ribbert) judge, it may stimulate the body tissues to the formation of cytolysins for the cancer cells.

Be this as it may, the main point is that the "serum" is curative, and being that, there is no reason to suppose that it parts with its activity if it be withdrawn by the aspirating needle and then injected into the subcutaneous tissues. I am of opinion that this is quite practicable and should be done in every case of cancerous effusion, unless the operation be barred for some special reason.

The work of Dr. Hodenpyl, New York, whose untimely death every one regrets, illustrates, and gives forcible point to my contention. In the very interesting cases he recorded, the ascitic serum of an individual who had been spontaneously cured, cured another person. The donor's serum being immune conferred immunity on the receiver. It goes without saying, I think, that the immunity which had been carried by the needle to the receiver and cured him would, *a fortiori*, have done the like service to the donor if the operation had been done on him prior to his spontaneous recovery. There had been effusion at that period, and I assume that absorption had taken place, otherwise there would have been no cure.—I am, etc.,

Lochcarron, Ross-shire, Aug. 2nd. CHARLES G. MACKAY.

EDINBURGH AND THE BRITISH MEDICAL BENEVOLENT FUND.

SIR,—In the Scottish column of the JOURNAL of August 27th, it is stated, in a short article under the above heading, that the amount of Edinburgh's contribution to this Fund for the year 1909 is a "blot to the discredit of Edinburgh."

I emphatically deny that. Your correspondent is presumably a contributor to the fund, and a member of the medical profession in Edinburgh, and, as such, one would have expected him to be cognizant of the peculiar circumstances relating to the collection of contributions for the year 1909.

Dr. Joseph Bell, the Honorary Secretary of the Fund for many years in Edinburgh, retired from the position late in 1909, and it was not till the end of the year that I agreed to accept the post.

The time during which it was possible to attempt to collect contributions was, consequently, limited to a few weeks in the early part of this year.

I am, of course, wholly at one with your correspondent in the hope that the members of the medical profession in Edinburgh will contribute generously to this Fund in the future.

I, however, not only hope for, but expect such generosity, and I cannot but regret that your correspondent has deemed it expedient to adopt such a method to further this end.—I am, etc.,

Edinburgh, Aug. 29th. A. DINGWALL FORDYCE.

THE EARLY DIAGNOSIS OF UTERINE CANCER.

SIR,—It is my growing conviction that the incipient stage of cancer of the uterus is coincident with the maximum weight of the woman, irrespective of age, and that the duration of this incipient stage may vary, as does that of the recognized stage of the disease. I have already received several reports over medical signatures (in order to prove that I myself have not asked leading questions), all to the effect that the time of maximum weight occurred during the years immediately preceding the diagnosis of cancer (that is, in the incipient stage of the disease). The questions asked were: (1) "Present age?" and (2) "About when did you weigh the most?" The second question should have been, and will hereafter be, "About when did you acquire your maximum weight; and about how long did that good weight continue (or how long have you been losing weight or strength)?" A third question should be, "About how long ago did symptoms appear?"

Following are the data of *every* case received to date:

Case 1, aged 51; maximum weight about 1 year ago. Case 2, aged 35; maximum weight 1 year ago. Case 3, aged 54; maximum weight about 9 months ago. Case 4, aged 46; maximum weight about 9 months ago, 190 pounds. Case 5, aged 50; maximum weight at present time. Case 6, aged 52; lost weight during past year, but substantially the same for about 5 years previous to that. Case 7, aged 35; maximum weight acquired 2 years ago; pregnant shortly afterwards.

The majority of the cases interviewed by me *clearly* follow the general line (as can be seen by examining the twenty-six histories), but, unfortunately, the exact dates have not been, or could not be, learnt. The following data are extracted from those cases which are most definitely outlined. All but one are cancer of cervix, and all but one were diagnosed as inoperable.

Case 1, acquisition of maximum weight about 5 years ago; duration of good health and strength, about 4 years; symptoms began 7 months ago. Case 2, acquisition of maximum weight about 3 years ago; duration of good health and strength, 1 or 2 years; symptoms began 5 months ago. Case 3, acquisition of maximum weight about 7 years ago; duration of good health and strength, about 5 years; symptoms began 2 years 8 months ago. Case 4, acquisition of maximum weight about 4 years ago; duration of good health and strength, about 3 years; symptoms began 10 months ago. Case 5, in which the cervix was entirely destroyed, the uterus enlarged and lower part of broad ligament thick and tense, reports acquisition of maximum weight about 10 years ago; a loss of strength for the past 4 years; and the appearance of symptoms but 5 months ago.

The following data were lately gathered for me from his rather recent records by one surgeon whose attention had already been directed to the question of weight.

Case (a) aged 48; maximum weight 2 years before symptoms appeared.
Case (b) aged 45; maximum weight 1 year before symptoms appeared.
Case (c) aged 50; maximum weight 2 years before symptoms appeared.
Case (d) aged 40; maximum weight 6 months before symptoms appeared.
Case (e) aged 38; maximum weight about time of appearance of symptoms.
Case (f) aged 70; maximum weight 4 years before symptoms appeared (fundus).

Clinical data of cancer of $\frac{\text{corpus}}{\text{cervix}}$ uteri:

1. Present age?
2. About how long ago was maximum weight acquired, and about how long did it continue?
3. About how long ago did symptoms appear?

—I am, etc,

Straitsmouth Inn, Stonehaven, Rockport, Massachusetts, U.S.A., Aug. 11th. E. ATTLEE.

Contract Medical Practice.

TERMS FOR CLUB ATTENDANCE.

MEMBER writes that he has been asked to be medical officer to a club on the following terms: The married men with families to pay 1s. a month, the single 4s. annually (?). He wishes to know whether these terms are too low, and whether it is not customary in clubs for the married and single members to pay the same contributions. All confinements are to be one guinea extra.

*** These terms compare favourably with those of many other clubs, but there is too great a discrepancy between the contributions of the married and single members. It is very usual for the married and single to pay the same, but the contributions in these cases are nearly always less than 1s. a month.

Universities and Colleges.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have been approved at the examinations indicated:

SURGERY.—†F. H. W. Brewer, †A. Gordon, †W. J. G. Gayton, †M. S. Jevons, †J. C. Johnson, †J. A. Laughton, *G. Meyer, *†J. G. Reidy, *†H. Stanger.

MEDICINE.—*†H. R. L. Allott, *†W. J. Gibson, *†J. M. Moll, †J. G. Reidy, *†A. D. Vernon Taylor.

FORENSIC MEDICINE.—E. M. E. Hall, C. B. Hawthorne, J. B. Holmes, J. C. Johnson, A. D. Vernon Taylor, C. B. Welsby.

MIDWIFERY.—D. E. S. Davies, E. M. E. Hall, O. Marshall, J. M. Moll, J. G. Reidy; A. D. Vernon Taylor.

* Section I. † Section II.

The diploma of the Society has been granted to Messrs. F. H. W. Brewer, W. J. G. Gayton, M. S. Jevons, J. A. Laughton, J. G. Reidy, and H. Stanger.

Public Health AND POOR LAW MEDICAL SERVICES.

TYPHOID FEVER IN THE COUNTY OF DURHAM.[1]

THE insanitary condition of many parts of the administrative county of Durham, with its population of over a million persons, has frequently been commented on. As long ago as 1896 the county council made a representation to the Local Government Board that the Whickham Urban District Council had made default in the performance of their duty under the Public Health Act, 1875, with respect to certain specified insanitary conditions. Some correspondence ensued between the Board and the councils, and after consideration the Board decided not to direct formal inquiry into the subject-matter of the county council's representation. In spite of this rebuff the county council made a similar representation in 1895, when Dr. Darra Mair made a report to the Board upon the sanitary circumstances of the district. In 1904 the county council represented to the Board that the Chester-le-Street Rural District Council had not properly put in force the Public Health Act and the Housing of the Working Classes Act, and in 1906 a like complaint was made by the county council with respect to the Hebburn Urban District Council. Reports were made to the Board with regard to Chester-le-Street by Dr. Wilfred Fletcher, and by Dr. R. J. Reece with regard to Hebburn, but in no one of these three reports is there any opinion expressed as to whether the district councils concerned were or were not in default in carrying out their statutory duties. It is true the medical inspectors named gave many glaring instances of insanitary conditions, and made important recommendations for their abatement, but it is not unlikely that the apparent lack of support which the county council received from the central authority accounts in some measure for the *laissez-faire* attitude of many of the district councils which is revealed in the preliminary report on typhoid fever in the county of Durham, recently presented to the Local Government Board by Dr. S. W. Wheaton.

In a preface to the report Dr. Newsholme points out that for many years past the county of Durham has had the highest death-rate from typhoid fever of any county in England and Wales. After commenting upon the possible effects of domestic overcrowding, of the special mining industry, of the water supplies and of certain foods upon the incidence of the disease, he refers to the extremely filthy domestic arrangements by which excremental matters are retained in the immediate vicinity of dwellings. These arrangements he considers are in large measure associated with the excess of typhoid fever in the county, where the use of the privy-midden is still almost universal, although so-called ash-closets are now provided in most of the new houses of the working classes.

The report itself discloses much careful and painstaking effort on the part of Dr. Wheaton, who admits, however, that if the causes of typhoid fever in the county are to be completely unravelled and prevented from continuing to operate, his preliminary conclusions will require to be confirmed by further inquiry continued over a long period and to be supplemented by much fuller information. He suggests for this purpose that the medical officer of health in each district in the county should carefully investigate every case of the disease notified to him, an exact record being kept of the antecedents of each case, together with the approximate date of onset of the illness, and the relative dates of cases in the same household. Other recommendations are that statistics should be prepared for each sanitary district, setting out for each year the age and sex incidence of all cases of the disease, the occupations of those attacked, and the number of cases treated respectively at home and in hospitals. That a statement should be prepared for each district, giving the method of excrement disposal for each tenement, and that a record should be kept of the number of privy-middens converted into ash-closets, and of privies replaced by water-closets, and of the method of scavenging in force in each district, having special reference to the efficiency of the system and the frequency of removal

BRONZING CARRIED ON IN FACTORIES AND WORKSHOPS.[2]

BRONZE powders are used in lithography and printing, and mostly in the dry state. Bronze lithographic inks have been tried, but they have been a failure. Much of the bronzing in this country is still done by hand. The powder is applied by means of a piece of cotton-wool or by a soft pad on to the printed surface, after which the sheets are dusted by rubbing them with a clean pad. Clouds of dust rise from the surface, especially with young and inexperienced workers. The recommendations of the Departmental Committee of 1895 as to the employment of means for preventing the escape of dust during bronzing were, with other details, published by the Home Office, and, although issued only as voluntary regulations, yet

[1] Reports to the Local Government Board on Public Health and Medical Subjects (New Series, No. 35). Dr. S. W. Wheaton's preliminary report on enteric fever in the county of Durham. Darling and Son, Limited. (9d.)

[2] Report by Edgar L. Collis, M.B., W. Sydney Smith, and Rose E. Squire, all of the Factory Department, Home Office. London: Wyman and Sons. (4½d.)

they were well received by factory owners, and many of them were adopted, including the substitution of machine for hand work. It has been conceded that bronze work done by hand is more trying to the workers and more unhealthy than when done by machinery. Bronze dust is injurious to health in two ways: (*a*) by its irritant effects when inhaled for a prolonged period, and (*b*) by its toxic effects, due to the special character of the dust. Arlidge, Oliver, and Hoffman are quoted as to the harmful effects of metallic dust when inhaled; while, in the opinion of Dixon Mann, Wynter Blyth, and Lewin, the toxic effects of the metallic dust in bronze powders can hardly be attributed to the copper they contain.

Two hundred and thirteen lithographic and letter-press printing works were visited. In these 742 persons are employed; it is, therefore, not a large industry. Under the term "bronzing" is included all processes in which metallic powders, either in the wet or dry state, are used to produce a gold, silver, bronze, or similar metallic effect upon paper, wood, sheet metal, leather, etc. The report deals only with processes in which dry powders are used. These powders are not made in England. They come from Nuremberg and other towns in Bavaria. Gold bronze powders are composed of copper and zinc, with traces of lead, tin, arsenic, and iron. They contain 70 per cent. of copper, but in orange bronze powder there may be as much as 99 per cent. of copper and 1 of zinc. Silver bronze contains tin, zinc, and aluminium.

In hand bronzing 53 per cent. of the workers complained of not feeling well; but in machine work, with little escape of dust, only 35 per cent. complained. The symptoms are sneezing, coughing, and other signs of naso-laryngeal irritation, also a coppery taste in the mouth, epistaxis, headache, nausea, and vomiting. There is frequently observed on the teeth a green line. Since persons under 16 years of age do not suffer more than adults, it is not proposed to prohibit such from working in bronze. The introduction of food and drink into workshops is forbidden, but milk and tea immediately brought into the room before it is consumed are not interdicted. The serving out of half a pint of milk at 11 a.m. and at 4.45 p.m. has been much appreciated by the workers of the firms which voluntarily undertook to discharge this function, and experience shows that among the workers in bronze who received milk there has been less sickness than in workers who did not receive milk. Although 65 per cent. of the factory owners have voluntarily been giving milk to their workers, it is not proposed to enforce the remaining 35 per cent. to fall into line with the others. Recommendations are made in regard to the provision of lavatories, wearing of respirators and overalls. Escape of dust in hand bronzing is to be prevented by exhaust draughts.

SMALL-POX ON BOARD SHIP.

WE have received from Dr. T. P. Lucas of Brisbane a copy of a report which he had sent to the Board of Trade with respect to an outbreak of small-pox on the ss. *Otway*, London to Brisbane, March, 1910. Dr. Lucas, who was a passenger on the *Otway*, enters into some detail as to the circumstances attending the outbreak, concerning which the Board of Trade may be trusted to make suitable investigations.

SWAB.—A medical practitioner is not under any obligation to take a swab from a case of diphtheria occurring in his practice and a district council cannot compel him to do so.

A. V. R.—We have carefully read all the written and printed matter sent us, and we do not think that our correspondent has much cause for complaint. The case about which he writes appears to have been carefully considered by the board of guardians, who have unanimously decided to support their own official. We are afraid our correspondent, evidently with a strong desire to do his best for his patient, displayed some want of discretion when he took upon himself to give orders without proper authority to make him do so.

NON-PAYMENT OF FEE BY GUARDIANS FOR CERTIFICATION OF PAUPER LUNATICS.

ARFON writes saying that in the year 1907 he certified a pauper lunatic for asylum, and the guardians, who usually pay punctually for such cases, did not then do so, but deferred payment because they expected the patient's friends would pay. These guardians now express their regret that they are unable to entertain the claim owing to the length of time which has elapsed since the certification took place.

*** Our correspondent says it is his intention to press the matter farther, and asks our advice on it. We cannot advise any proceedings being taken to recover this claim, as by 22 and 23 Vict., cap. 49, sec. I, any debt which may be due from the guardians shall be paid within the half year in which the same shall have become due, but not afterwards; provided that the Poor Law Board by its order may, if it sees fit, extend the time within which such payment shall be made for a period not exceeding twelve months from the date of such debt.

Medico-Legal.

INQUEST FEES AND COTTAGE HOSPITALS.

AT a recent inquest in Cranleigh, Surrey, on the body of a patient who had died after admission to the Cottage Hospital, the medical witness in the case, Dr. A. A. Napper, before being sworn, raised the question of whether he would be allowed a fee. He did not wish, he said, to press the point unduly, but it ought to be raised, because it was not fair that medical men should have to give their services as medical witnesses simply because the deceased happened to have died in a cottage hospital. Although, therefore, he was going to give his evidence, it would be under protest.

In response, the Deputy Coroner (Mr. Gilbert H. White) said that he quite agreed with the statements made. It did seem hard that if a person happened to die in a cottage hospital the doctor got no fee for giving professional evidence, whereas, if death had taken place on the way thereto, a fee would have been payable. But the law in respect of fees payable at inquests said that if a person died in a public hospital the medical man whose duty it had been to attend that person as a patient of the institution must not be paid a fee if an inquest were subsequently held. It seemed to the speaker, however, that a distinction should be drawn between cottage hospitals and public institutions of the kind specified by the law. In their case the inquest would be held at the institution itself, and the evidence would be given by its house-surgeon; but inquests were not held at cottage hospitals, but away from them, and the doctor had to be fetched away from his practice. The matter ought to be fought out before the auditor, the point being that the inquest was not held at the hospital, but away from it—a fact which brought the matter into a different category.

Finally, with a view to the question being threshed out, the coroner decided to allow Dr. Napper a fee if he would undertake to fight the matter out with the auditor. To this Dr. Napper agreed.

WORKMEN'S COMPENSATION.

Phthisis or Accident.

IN a case at Manchester on August 15th a claim for compensation was made by the dependants of a man who had died of tuberculosis. It appeared that while he was attending a crane on January 24th, 1910, he was struck on the forehead by a heavy weight. In ten days the wound had healed, but the man then complained of pains in his body. When medically examined, he was found to be suffering from pulmonary tuberculosis, from which he died on June 1st. It was now alleged that death was caused or accelerated by the accident. Dr. Clough said that in his opinion consumption was latent in the man's body until the accident, and poorer food due to his receiving only half-pay as compensation lowered his vitality and caused the disease to become active and develop so rapidly. Judge Parry, with whom sat Dr. Judson Bury as medical referee, said that there was no evidence that the accident had materially accelerated the disease, and as the court was bound by the view of the medical assessor, which he had no doubt was correct, there would be an award for the respondents.

Death following Injury to an Eye.

In a case at Wrexham (August 12th) it appeared that one McCarthy, who was a seaman on the ss. *Porthcawl*, sustained an injury to his eye owing to dust blowing into it. As a result, the eye had to be removed. The shock of the operation was alleged to have made him very despondent and to fall into a debilitated condition, and he subsequently died. His relations thereupon brought a claim for compensation. Dr. Cantillon, Dr. Theodore Francis Dillon, and Dr. Smith gave evidence to the effect that death was due to exhaustion and shock following on primary cancer and cirrhosis of the liver. They attributed the man's death to the operation in so far as it made the man despondent, which brought on indigestion and dyspepsia. Dr. Barry, Dr. Mitchell Stevens and Dr. Cook could not agree that death was in any way due to the accident. They expressed the belief that cancer was in existence before the accident. Textbooks were quoted on either side in the endeavour to settle the question. Eventually Judge Hill Kelly said he was not satisfied that a chain of causation had been established between the accident and death. He therefore found for the respondents.

Epileptic Fits.

In a case at Whitby (August 3rd) it appeared that a miner met with an injury through the fall of a roof on August 3rd, 1909. For this he was treated at hospital for a short time, when he returned to work. Later on he developed epilepsy, and on April 30th he had an epileptic seizure. He now claimed compensation on the ground that the epilepsy was produced or aggravated by the accident. He admitted having left the service of another employer in 1905 owing to a fainting fit. Medical men were called on either side. Dr. J. W. Blandford (Stockton) and Dr. F. B. Wigfield (Skelton) said that, judging from the history of the case, epilepsy was the direct result of the injury. Dr. J. W. Staniforth, surgeon to the Grinkle Mines, said that the applicant first mentioned having had a fit as a result of the accident in November, 1909. From what he knew he believed there was epilepsy in the family of the applicant. Eventually Judge Dodd, who was assisted by Dr. Edmondson (Scarborough) as medical referee, found for the applicant—awarding him 13s. 6d.

LOCUMTENENTS AND AGENTS' FEES.

A Correspondent asks whether an agent who has introduced a locumtenent, and received his fee, is entitled to another fee if that locumtenent is engaged on a future occasion without consulting the agent.

*** In the absence of express agreement to the contrary, an agent is entitled to a fee only when he directly introduces a locumtenent.

Medico-Ethical.

The advice given in this column for the assistance of members is based on medico-ethical principles generally recognized by the profession, but must not be taken as representing direct findings of the Central Ethical Committee, except when so stated.

MILEAGE FEES.

A. C.—In the circumstances described a fee of 2 guineas for each visit seems fair and reasonable.

Obituary.

The Rev. Wm. Jeffrey, M.D., Kilsyth, died on August 25th, at the age of 66 years. He was licensed by the Metropolitan Free Church Presbytery forty years ago, and was first assistant at Newhaven, coming to Glasgow in 1875. He was there impressed with the need of the poor for medical as well as spiritual advice, and he accordingly qualified as a medical practitioner. He was transferred to Kilsyth Free Church in 1889.

Dr. John McConville, a well-known and highly respected practitioner in Glasgow, died on August 22nd at his residence in 14, Parkgrove Terrace. He was a native of Paisley, and after studying at Anderson's College Medical School he qualified in Edinburgh in 1856, graduating M.D. of St. Andrews in 1861. He became a Fellow of the Faculty of Physicians and Surgeons, Glasgow, in 1880. Fifty years ago he returned to Glasgow from the South and started practice, continuing till quite recently. He was 74 years of age, and is survived by his wife, two daughters, and four sons, one of whom was in practice with him in the city.

Dr. Patrick A. Smith, who died a short time ago, was one of the best known general practitioners of Glasgow. He studied at the University of Glasgow, where he took the degrees of M.B. and C.M. in 1881; he became a Licentiate of the Faculty of Physicians and Surgeons of that city in 1882, and a Fellow in 1884. He obtained the degree of M.D. in 1896. After practising a short time in Dumbarton he settled down in Glasgow. He was a successful and highly respected practitioner, having troops of friends in all sections of the community. He was especially popular among his co-religionists, the Roman Catholics. He was the medical adviser of the late Archbishop Eyre, and was married to a sister of Archbishop Maguire. For some time Dr. Smith acted as a member of the Govan Parish Council, but he had to retire owing to the pressure of his professional engagements. Three years ago, on the occasion of his silver jubilee as a practitioner, he was entertained by his many friends in Glasgow, and presented with an illuminated address. Dr. Smith, who lost his wife many years ago, leaves a family of three sons and three daughters. To skill in his profession he united great personal charm, and he was a man of the highest character.

Mr. James Lymburn, who was Librarian of Glasgow University from 1879 till 1905, has passed away at the ripe age of 75 years. He was a native of Paisley and entered the library of the University as Assistant in 1868. On the death of Mr. R. B. Spears in 1878 Mr. Lymburn was appointed his successor. During his term of office he prepared a students' catalogue which was of great value to readers.

We regret to announce the death of Professor Friedrich von Recklinghausen, the distinguished pathologist, which took place at Strassburg on August 25th, in his 76th year.

Professor Masse of Bordeaux, who recently died at the age of 71, had taught operative surgery for a number of years. He made researches on the pathogeny of cysts and dermoid tumours of the iris. He founded in 1880 the *Gazette Hebdomadaire des Sciences Médicales de Bordeaux*.

Medical News.

The late Sir Charles Marriott, M.D., of Leicester, left estate valued at £33,545.

The Annual Welsh Medical Dinner will be held under the presidency of Mr. Robert Jones (Liverpool), at 7.30 p.m. on Friday, September 30th, at the Criterion Restaurant, Piccadilly, London, W. Applications for tickets should be made at an early date to the Honorary Secretary, J. Howell Evans, 25, Berkeley Square, W.

With reference to the demonstrations in clinical medicine now in progress at the London Hospital, and open to all medical men, we are informed that next Monday Dr. Wall, instead of dealing in the lecture theatre with diseases of the lungs, will take a party to Frimley Sanatorium. The train leaves Waterloo at 1.10 p.m., and vouchers for cheap tickets can be obtained; it is also desirable that those who propose to go down should give notice to Mr. Munro Scott at the London Hospital not later than Saturday morning, in order that arrangements may be made for a sufficiency of cabs to be in attendance at Frimley Station.

Some two months ago we had the pleasure of drawing attention to the gallantry displayed by Dr. C. J. J. Harris, of Whitehaven, in connexion with the terrible mining accident in that locality, and now we have the further pleasure of completing the record by stating that he was one of those on whom His Majesty King George conferred the Edward medal on the first occasion of the distribution of this award. The mining accident in question was one of the worst which has ever occurred in respect of the number of lives lost, and as the mine instantly after the explosion caught fire, rescue work was accompanied by even greater dangers than usual. The whole of the operations were conducted in the densest smoke and heat, and all were aware that there was a considerable possibility of a further explosion taking place. Dr. Harris, who became M.R.C.S. in 1884 and M.D.Durham in 1901, is an old student of Charing Cross Hospital and formerly held a commission in the militia.

The Child, a new monthly journal devoted to child welfare, will appear in the early autumn. Dr. T. N. Kelynack has undertaken the editorial oversight, and will be assisted by a representative staff of medical, educational, and philanthropic experts. The journal will aim at meeting the requirements of all engaged in child study or working for the betterment of child life. Among other communications the first number will contain articles by Mr. John Burns, Sir Lauder Brunton, Dr. Bertram Thornton, and others. In order that *The Child* may serve all interests working for child betterment, the publishers are arranging to issue with each number a *Directory* of schools and other educational establishments; also of societies dealing with all forms of child welfare, and of hospitals, orphanages, and like institutions for children. The publishers are Messrs. John Bale, Sons, and Danielsson, Limited, 83–91, Great Titchfield Street, Oxford Street, London, W.

During the past fortnight many cases of epidemic cerebro-spinal fever have been reported in Leicestershire and its neighbourhood, but even if each rumoured case be a real one the fears expressed near and far would scarcely be justified. The experience both of Scotland and Ireland in 1907 and 1908 shows that the disease may prevail widely and for long without adding very materially either to mortality or sickness rates, and without preventing the inhabitants of infected towns pursuing their ordinary avocations tranquilly. What gives the disease its importance is that while there is immense variation in the gravity of attacks the general ratio of deaths to attacks is very high, while serious, and more or less permanent, sequelae are always to be expected. On the other hand, a large proportion of every community would appear to be immune, the occurrence of more than one case in a household being comparatively rare, and many infected persons carrying in their nasal passages the coccus which is the cause of the disease without exhibiting illness of any kind. It is this circumstance which renders control of the disease on ordinary lines by sanitary authorities peculiarly difficult.

Letters, Notes, and Answers.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

STAMMERER writes: An intelligent boy, aged 9 years, has acquired stammering, and his father, a schoolmaster in a country district, is anxious to cure him if possible. Will any reader kindly suggest a suitable book on the subject for the use and guidance of the boy's father?

BIRMINGHAM writes: Is snuff-taking, as a rule, injurious? In the case I have in view the patient was an inveterate cigar smoker. His doctor thought smoking was deleterious to his heart, and knocked smoking off. Since then the patient has become a snuff-taker, and feels no harmful effects from the habit.

A CORRESPONDENT writes: I have a patient, age about 35, who has an erection of the penis every morning, but no emission. The erection quite incapacitates him from attending to business, and I shall be obliged if your readers can suggest a remedy. Drugs are useless, and there is nothing to be seen with the urethroscope or cystoscope.

FRAXINUS would be glad to know whether milk soured with sauerin, or other lactic acid-forming agents, is absolutely free from sugar or not. Having a number of cases of glycosuria to treat, and living in a country where proper diabetic foods are hard to obtain, he thinks that sour milk might be of use, but wishes to feel sure that it is quite safe to use even in large quantities.

SENEX writes: I shall be glad if any reader can help me as to where a bed pan can be purchased. The one I refer to I bought several years ago and found most useful. It has unfortunately been lent and got broken. It was of peculiar design—broad and oval, and not so deep as the ordinary round or slipper pattern. It was provided with two hollowed saucer-shaped depressions on which the buttocks rested most comfortably, and I believe it was an American idea.

*** The "bed-easee" devised by Dr. Pitt-Taylor, manufactured by James Woolley and Sons of Manchester, and described in our columns on May 23rd, 1908, is of the kind indicated.

ANSWERS.

OMNE VIVUM EX VIVO and A LAYMAN have not enclosed their cards.

LEX.—A carriage to be exempt from licence duty must be used exclusively for trade or husbandry, and must have the owner's name printed on it in accordance with the Customs and Revenue Act, 1888, Sec. 4, Subsection 3.

HOME FOR GIRL OF FEEBLE INTELLECT.

S. M. O. H.—Such a girl would be eligible for the Royal Albert Institution for Training the Feeble-minded of the Northern Counties at Lancaster, terms and forms of application for which might be obtained from the Secretary.

CLIMATE FOR PHTHISIS.

S. D. C. writes: I should advise "G. P." to try some place on the Chiltern Hills.

F.R.C.S. writes: In answer to "G. P." the place that would most nearly meet his daughter's requirements is Caterham-on-the-Hill. Situated on the North Surrey downs, seventeen miles due south of London, at an altitude of 660 to 700 ft. above sea level, on a dry gravelly soil overlying chalk this class of case does remarkably well. The journey to London (Cannon Street), which takes about forty-five minutes, is not sufficiently long to be trying.

MEDICAL OFFICER writes: With the exceptions of Folkestone, Hastings, Bexhill, Seaford, and Worthing, none of the Kent or Sussex seaside towns are suitable places of residence for a case of early pulmonary tuberculosis. Probably none of the towns at this end of the south coast are suitable to cases of advanced pulmonary tuberculosis. In Sussex, Balcombe, Hayward's Heath, Crowborough, Seaford, Rotherfield, and some rather out-of-the-way villages—all situated on high ground, and well-protected from east winds—are well suited to cases of the kind. The town of Lewes, mentioned by your correspondent, would not be a suitable place of residence for a case of pulmonary tuberculosis. As the question of railway service to London is important, it may be mentioned that the service from Hayward's Heath is excellent, that it is moderately good from Balcombe, and that it can be described only as poor from Crowborough. From other otherwise suitable places in Sussex the railway service is impossible for the average man who is engaged in business in London. In Surrey, suitable residence within a reasonable distance of town might be found in the higher parts to the south of Dorking, in the higher parts of Redhill, in Warlingham, and in Woldingham. All these places are well suited to those with early pulmonary tuberculosis; but the railway service to London is only moderately good.

LETTERS, NOTES, ETC.

INCOMPLETE DEVELOPMENT OF EXTERNAL AUDITORY MEATUS.

DR. GRIFFITH J. WILKIN (Paignton) writes: In the JOURNAL of August 27th I see a note on the incomplete development of the external auditory meatus from Dr. T. E. Francis of Swansea. When I was a senior student at St. Mary's Hospital Mr. Field, knowing that I took an interest in ear work, kindly asked me to be present at a private operation of his. The case was one of congenital absence of, I think, both auditory meati, and, so far as I remember, both meati were closed with bone, only a small chink, through which a fine probe could not pass. The date must have been quite in the early Eighties, but possibly Mr. Field could give some information regarding the results, and also as to whether he has ever seen another similar. Personally, neither in hospital or general work have I ever met with such. Now I should be tempted to use a very fine trephine and remove a part of the bone, so as to give admission of air waves to the membrane if present or to the middle ear; of course the greatest care must be employed to avoid damage to other structures.

THE CAUSATION OF SEX.

DR. JAMES W. RITCHIE (Belfast) writes: I have been interested in the letters lately appearing in the BRITISH MEDICAL JOURNAL *re* causation of sex. I attended a patient last week who gave birth to her fourth child. The three previous births were males and this was a female. After delivery she asked me the sex, and when I told her she said she knew it would be so. I asked her for what reason. Her answer was that she had read in Aristotle that if she only allowed her husband to have intercourse with her a few days previous to her expected change if conception took place it would be a female, and that she had only allowed intercourse to take place then. She had also a theory that if conception took place immediately after her changes that the expected birth would be a male. It would be interesting to know if the time of conception had any effect on the causation of sex.

A HANTS M O.H. writes: I have read Dr. M. Ward's suggestions with interest, but is he correct in stating many more female children are born than male? I think not. Certainly not in my area. His suggestions are quite new to me, and am sorry I have not read the previous correspondence. I have been actively engaged in accouchement practice for thirty-six years. In cows the following is reliable (heifers with their first calves being excluded): (1) The male has nothing whatever to do with the sex of the offspring. (2) A cow pours off ova of opposite sexes *only* alternate periods. (3) Say she has a bull calf, and is served the first time she again comes on use or the third or the fifth and so on, the next calf will be of the female sex, and consequently the second, fourth, or sixth time will produce a bull calf. I am of opinion the same could be carried out in the human race, especially where sex may be of intense importance.

DR. GEORGE STEWART (Blackhall, Midlothian) writes: In the issue of the BRITISH MEDICAL JOURNAL of August 27th Dr. Martindale Ward states that many more female children than male are born. I understand that males are in the majority in the proportion of 104 to 100. The deficiency of males in later life is due to causes operating after birth. This is a small matter, but I feel that I should draw attention to such a mistake.

DR. HUGH WOODS, M.A.O. (London) writes: Dr. F. H. Walker, in his letter published in the BRITISH MEDICAL JOURNAL of August 13th, contends, as I understand him, that an anteperiodic conception produces a male and a post-periodic conception a female. I can remember at least one case in which an undoubted post-periodic conception produced a male. Dr. Walker contends that the "excess of female births" is explained by his theory; but I have always believed that the male births exceeded the female births, and although I always keep an open mind on statistical statements, I think the "excess of female births" is an extremely weak support for his theory.

GEO. ELIOT, M.D., M.R.C.S. (Grenfell, Sask., Canada), writes: Seeing some letters in the JOURNAL lately on the subject of causation of sex, I am induced to offer my experience.

I believe that in man, as in the lower animals, sex is dependent on the maturity of the ovum, and that therefore it depends more on the time of intercourse, and therefore impregnation of the ovum, more than any other factor.

It is well known that stock-breeders, wanting to get a female, take the cow or mare to the male during or as soon after the period of "heat" as possible; if they want a male progeny, they put off the trip for eight or ten days, and generally get what they want.

I used to breed curly retrievers, and, as I always refused to sell the bitch pups, they were a dead loss to me; I tried, and found that by keeping the sexes apart till a week after all appearance of "heat" was over, I got at least three-fourths of each litter males; on two occasions, eight out of ten. When asked by women for advice in the matter, I applied the same reason with perfect success, as may be seen in the following instances, premising that I attended each of these women in all their confinements, with the one exception of No. 1, who had had two children before I knew her.

1. L. had six boys in succession; on my advice had intercourse on the day before the period was expected, and also on

the day after it had ceased (it only lasted two days, usual term four or five days); no more for that month; result, a girl. Then came another boy (no precautions); the little boy got drowned. The parents then resolved to try for a girl again, did, and succeeded; they had another boy accidentally two years after.

2. F. had a girl first; heard some talk about No. 1, came to me for instructions. I told her to postpone all intercourse till after the twelfth day, at least, from the cessation of a period. She did so; result, a boy. She deliberately got a girl next, and then two boys, each time telling me what was coming some months before term.

3. P., after the second girl in succession, got my instructions, but, being very passionate, did not follow them; result, five girls in succession, having told me what had happened on each occasion. Has not been pregnant since.

4. B., sister of last, had two girls; got instructions, intending to get a boy; made a mistake in dates, did not have intercourse till after the fifteenth day from cessation of period; got nothing, and has not been pregnant since, much to her regret.

5. S. had two girls, followed instructions, got a boy; then a girl, then another boy; the last three admittedly to test the theory; says she has enough now, and will not *try* for any more.

ST. PAUL'S "THORN IN THE FLESH."

DR. G. F. POYNDER (Bedford) writes: With reference to the above, the following extract from *The Great Prophecies of the Centuries Concerning the Church*, by G. H. Pember, M.A., will be of interest to your readers: "One notable incident in Paul's life that bears upon this subject has been often misunderstood, and a brief explanation of it may, perhaps, be useful. Wondrous visions and revelations had been vouchsafed to the Apostle, and he, consequently, fell into a danger, of which he speaks thus: 'And by reason of the exceeding greatness of the revelations—wherefore, that I should not be exalted overmuch, there was given to me a thorn in the flesh, *an angel of Satan* to buffet me, that I should not be exalted overmuch.' Now, countless pages of comment have been written upon this 'thorn in the flesh,' which has been supposed to be bad eyes, epileptic fits, and various other afflictions, but without any certain conclusion. Let us, however, cease to burden and obscure the sacred text by reading human notions into it, but accept rather its own simple and plain words. We shall then see that the thorn in the flesh was no mere disease or infirmity, but precisely what it is said to have been, that is, an angel of Satan sent to buffet the Apostle. This ever-active foe would be perpetually assailing him with the many hindrances and annoyances which are so well known to the true servant of Christ; would be often whispering in his ear incongruous, evil, and even foul thoughts, certain, should he fail to cast them off before they became his own, to check the inflow of spiritual power from the Holy Ghost; would sometimes draw over him a feeling of nervous lassitude, a weariness and feebleness of body and mind, just at the critical moment when it was necessary that he should be strong; would bring about disconcerting incidents, craftily devised to shake his faith, or to irritate his temper; and, in short, would baffle and thwart him at every turn, taking the fullest advantage of any circumstances that could be used for his discomfort and discouragement. Henceforth, then, this dread spirit would be ever hovering near the Apostle, who would be able to do the work for which he had been sent forth, only by dint of ceaseless prayer and a humble walk before his God—a life of peril and danger, of creeping ever, as it were, along the brink of a precipice, which must have powerfully counteracted any tendency to undue elation."

MEDICAMENTS APPLIED TO UTERUS TASTED IMMEDIATELY.

DR. ALEXANDER DUKE (London) writes: If Dr. D. Campbell (Calne) will refer to my letter on this subject, he will find I claimed no honour for "recording the fact known before." I merely called attention to the fact, and had I been aware that it was known before I should not have asked the question in the latter part of my letter. I presume that Dr. Campbell's statement that "great credit is due to me for discovering and recording the fact" must be meant in sarcasm? but if so it is quite uncalled for, as I had not known that in 1892 Dr. Lombe Atthill had called attention to the peculiarity, and I should still like to know how the taste is transmitted so rapidly?

DR. CAMERON KIDD (Bromsgrove), writes: The following interesting extract seems to have some application to, and may throw light upon, the immediate tasting of medicaments applied to the uterus recently mentioned in the JOURNAL; it is from a serious novel, *First it was Ordained*, written by Mr. Guy Thorne, with the admirable purpose of combating latter-day limitation of families. The hero Roland, of whom Gertrude is, of course, the prolific wife, is chatting (p. 128) at a fashionable evening party with a judge and the celebrated lady doctor, Ella Low. They have just been witnessing a recitation of decadent French poetry and the judge has asked: "And what is your view, Dr. Low, of the performance we have just been watching?" "Pathological!" she answered with a snap. "I've been at work, Judge, adding to my notes on hysteria. The experience has been most profitable, I assure you. I have seven instances of exaggeration of involuntary mobility and diminution of will power! The emotional, sensational, and reflex movements have been in excess while the voluntary have proved quite defective. I could point out half-a-dozen women in this room who will suffer from *globus hystericus* when they wake up to-morrow morning." "What an uncanny knowledge!" Roland said, laughing; "and pray what is *globus hystericus?*" "Feeling as if you'd swallowed an apple whole." the doctor answered, "and serve the silly creatures right! I am very glad that Gertrude is occupied at home with the chicks. *She* won't suffer from a *spasm in the coccyx* to-morrow morning!!" Gertrude is fortunate; a spasm in the coccyx must be most unpleasant and would probably cause "sensational and reflex movements."

ON THE DESTRUCTION OF FLIES.

DR. HARDMAN, J.P. (Blackpool), writes: Many years ago, long before the present agitation against flies, I had become convinced that flies might be the carriers of contagious disease. I had seen cases of purulent conjunctivitis which had been attributed to "a fly getting into the eye." I had also seen two or three cases (fatal) of "malignant pustule" of the face which had been attributed to "being bitten by a fly." These, of course, were cases of anthrax. Being an ardent microscopist, I had received with enthusiasm the bacteriological discoveries so rapidly developing, and had subjected all these conjunctival cases to examination by the microscope, merely tinting with one or other of the aniline colours, drying and mounting. I had found that in all these conjunctivitis cases the discharge contained some predominant micro-organism, which might have been the exciting cause. But I made no cultures, nor took any other steps either to prove the pathogenic powers of the micro-organisms or to differentiate them. Being then in busy practice, I had no time for more than I did. But, though I have possessed these convictions as to pathogenesis by flies, I never attempted to act on them until seven to eight years ago. I then commenced destroying flies systematically by the means I still adopt. A halfpenny newspaper is folded and folded until it is about 12 in. to 13 in. long and 2½ in. wide, well flattened out, and tied with strong thread, about 1½ in. from each end. With this instrument it is possible to give a rapid but light tap, sufficient, with a little practice, to kill, but not crush, the flies. I had these instruments in each room. I soon discovered that there was a sporting element in the chase of the quarry, some flies being exceedingly alert and requiring some little art and dexterity to ensure their destruction.

Flies can only see perhaps about a foot, and can then only see an object moving. You may approach a fly rapidly up to 2 ft., and then the hand with the killer may be cautiously advanced towards or over the fly until 6 or 7 in. off it, when a rapid instantaneous movement of the wrist administers the fatal tap.

When first I began it was surprising what numbers I killed—fifteen or twenty in the kitchen, and the same number, perhaps, in the hall and sitting rooms. There are three main kinds of flies—the big bottles, the ordinary house-fly, and a smaller fly. The last, though small, are often very active. Next year I repeated this, and year after year the same.

About the third year I noticed that flies were much less common, and year after year they have kept diminishing in numbers, until now we have only a stray one or two occasionally. Even in the height of summer I often now do not kill one in a week; where I used to kill, perhaps, a hundred, now I hardly kill one. Practically I have exterminated them as far as this house is concerned. The house is situated on the Blackpool Promenade, facing the sea, but the whole mass of the town lies at the back, and there are stables not fifty yards away.

The conclusions I have come to are that nearly all the flies in a house belong to it. They are bred in it, and live in it, and are only to an insignificant extent recruited from outside. Therefore I would formulate the hypothesis that the almost total destruction of flies is quite within the bounds of possibility, and should be energetically undertaken by the members of each household.

Furthermore might arise the corollary, that, if the extensive connexion of flies, and the genesis of disease be proved, houses ought to be subjected to sanitary inspection, and the occupiers proceeded against and fined if the number of flies exceed a certain standard.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Eight lines and under	0	4	0
Each additional line	0	0	6
A whole column	2	13	4
A page	8	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *postes Restante* letters addressed either in initials or numbers.